



# BUDGET PRINCIPLES AND PROCEDURE

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*H. A. Finney, Editor*

# BUDGET PRINCIPLES AND PROCEDURE

BY

JOHN R. BARTIZAL, C.P.A.

LECTURER IN ACCOUNTING, NORTHWESTERN UNIVERSITY;  
JOHN R. BARTIZAL & CO., CERTIFIED PUBLIC ACCOUNTANTS;  
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## PREFACE

A budget procedure must meet the problems of the business for which it is designed, and since no two businesses are alike, no two budget procedures should be exactly the same. However, no matter how specialized a particular business enterprise may be, certain basic principles and procedures may be applied in preparing a budget for it. For this reason the author's decision as to the contents and organization of this book has been based on the belief that the book will best serve its intended purposes if budgeting principles and procedures are discussed in relation to an extended illustration applicable to some hypothetical business, without interruption for any digressions relative to special types of business and various methods of operations except when an interruption is necessary to emphasize the contrast in procedure when dealing with varied conditions. Throughout the following chapters, therefore, the procedure of preparing a budget is illustrated, step by step, by application to the problems of a business manufacturing products for stock.

Budgeting for other types of business will follow much the same pattern and sequence of activities, as far as the accounting function of assembling the estimates is concerned. The budgeting procedure will differ principally with respect to the elements of operations to be estimated and the data on which the estimates are to be based. For example, if manufacturing is done to special order, the products ordered may vary widely from year to year, and estimating the sales may involve less reliance on data relative to products sold in prior years and more reliance on an established line of customers and the probability of repeat orders from them; but a sales budget of the general form and nature illustrated will be required. The budget of such a business will include an

estimate of production similar to that illustrated; but, instead of being predicated on estimates of the number of units of each product to be made, it may be based on estimates of the number of hours each machine or department will operate. And because in such a business there will be no finished goods inventories to level production, management will necessarily give recognition to this fact in making estimates of production.

The methods of making estimates of materials, labor, and production described on the following pages are based on the assumption that certain types of statistical data are available. Differences in the nature of the available data will cause differences in the methods of making the estimates. For instance, if the accounting control of production, materials, and labor is so limited that information concerning quantities is not available, it may be necessary to estimate the sales, production, and inventories in terms of dollar value rather than quantities. But even under such circumstances, the general framework of the budget as illustrated will remain.

It has seemed advisable to exclude from the scope of this book consideration of diverse operating and accounting conditions and the problems of special businesses, because of the probability that any attempt to deal with all such possible variations would distract the reader's attention from the orderly progress by which the detailed estimates of the various elements of operations are assembled in a complete and co-ordinated budget.

J. R. B.

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# BUDGET PRINCIPLES AND PROCEDURE





# CHAPTER 1

## INTRODUCTORY

**Definitions.** A discussion of the procedure of budgeting and budgetary control will be introduced by a few definitions of terms.

An estimate is a computed guess. As compared with a pure guess made at random or on the basis of general impressions, it has such weight as it may derive from the fact of having been computed from verified data or data assumed with some degree of probability. One may guess more or less blindly at the number of beans in a jar, or may estimate the number by taking measurements of the jar and making tests of the number of beans required to fill some unit of space. The more refined the measurements and tests, the more nearly accurate the estimate should be. The volume of sales for the ensuing year may be guessed at, or may be estimated from data on past performance, market conditions, probable buying power of consumers, and other factors. The pure guess may turn out to be more nearly accurate than the estimate, but its accuracy is accidental and does not qualify guesswork as the basis of any serious effort to forecast results.

An estimate may refer to the past, present, or future. The term forecast implies reference to future developments.

A budget is a forecast, in detail, of the results of an officially recognized program of operations based on the highest reasonable expectation of operating efficiency. What may be the "highest reasonable expectation of operating efficiency" is a matter of management policy, but a forecast should not be regarded as a budget unless it is concerned with the correction of conditions which result in preventable waste or excessive cost.

**Scope of budgets.** The implication of the word "budget" is primarily that of limitation of expenditure, and a budget of a most restricted scope might be limited to a single element of expense—as an advertising budget. A budget of a somewhat less restricted scope might be concerned with the expenditures of one department—as a sales department expense budget. A budget of a somewhat larger scope would forecast all cash receipts and disbursements.

The budget in its broadest scope covers the entire field of operations and serves as an instrument of control in all departments of the business. It is a forecast of the profits for a period, the cash receipts and disbursements for a period, and the financial condition at the end of the period.

**Forecast of profit.** The industrial budget is based on the fundamental assumption that business is conducted for profit. The expectation of profit is the usual inducement for the original investment of capital. If this expectation is not realized, additional capital may not be forthcoming when needed. If losses are consistently incurred, the result is depletion of capital, limitation of credit, and ultimate insolvency.

A comprehensive budget therefore contains a forecast of operations. This forecast should take the form of an estimated profit-and-loss statement for the budget period, supported by estimated expense statements in detail.

The control of profits is exercised by using the budget as a means of forecasting the results of an operating program, before the program is made effective, instead of waiting for results to show that preventable losses have been incurred. If the indicated results are not satisfactory, the plan should be reviewed carefully to determine what changes can be made to secure more desirable results.

**Forecast of cash receipts and disbursements.** An important contributing factor in many business failures is improper financing, which arises primarily from lack of information in regard to the financial problem.

A tentative budget of the prospective sales, costs, and

financial requirements of a new undertaking would probably result in a provision for adequate financing at the start, if possible, or in the abandonment of the project.

The function of the budget in this field for the going concern is to furnish data as to the cash resources and requirements in such form that a satisfactory financial program may be planned. A conservative estimate, by months, of cash receipts and disbursements for the period of a complete cycle of production, sales, and collections may forestall financial embarrassment by indicating in advance the necessity for additional finances or some curtailment of the operating program.

**Forecast of financial condition.** A proposed operating program may promise satisfactory results from the profit and cash standpoints, but an estimated balance sheet as of the close of the budget period may disclose some undesirable financial condition, such as an inadequate working capital or unsatisfactory ratios of fixed assets to net worth or debt to net worth.✓ A comprehensive budget should therefore contain a forecast balance sheet. Unless this balance sheet indicates a satisfactory financial condition, consideration should be given to adjustments of the operating program with particular reference to the sources of the unsatisfactory condition.

**Co-ordination.** The conditions under which modern business enterprise must be conducted necessitate a complexity of organization requiring a corresponding degree of controlled co-ordination of effort and resources.

The activities of the modern business organization are usually grouped according to function, and responsible individuals are placed in charge of the several functions or departments. Thus the sales manager is in charge of sales activities, the production manager is in charge of productive activities, and the treasurer is responsible for finances. Each of these individuals desires to operate his department to the best advantage. In order to do this, each must have certain definite information in regard to the activities of

the other departments and a proper perspective of the relation of the activities of his department to those of the organization as a whole.

All departments are interdependent for the purpose of producing satisfactory results. To illustrate: the sales manager is primarily interested in selling the greatest possible quantity of goods, yet his success therein is futile if the production manager cannot produce the goods in sufficient quantities to make the deliveries. The production manager is concerned with the production of goods at the lowest possible cost; an important factor in such a result is the fullest possible utilization of plant facilities in order to reduce the unit overhead cost; but it would be poor judgment to permit the production of goods for which there is no prospective demand, thereby building up unsalable inventories. Furthermore, it is impracticable to allow the sales manager to undertake to sell, or the production manager to undertake to produce, a greater volume than can be advantageously financed.

Any systematic attempt to forecast the results of an operating program necessarily involves consideration in detail of the requirements of each department or function, the extent to which such requirements represent demands upon other departments or functions, and the extent to which such demands can be met. An adequate and properly developed budget should be a program based upon the best possible co-ordination of activities and resources.

Although the complete budget should not be adopted without giving full consideration to the potentialities of all departments or functions and their co-ordination, the budget must have a starting point or controlling basis. This controlling basis is rather necessarily determined by the fact that it is hardly possible to budget intelligently the activities of any major function without reference to the volume of business. The sales estimate therefore usually seems to be the most logical starting point. The attempt to co-ordinate the activities of the other departments

to the estimated activities of the sales department may disclose such limitations as a lack of plant capacity to produce the goods or insufficient capital to finance the program, or it may disclose a surplus of both plant capacity and capital which cannot be utilized in producing the merchandise required for the reasonably predictable volume of sales. If so, the tentative budget (for it must be regarded as tentative under such circumstances) has performed one of its major functions in bringing these conditions to the attention of the management before the adoption of a definite program. Inadequate plant or capital may mean a curtailment of possible sales; a surplus of plant or capital may suggest an effort to develop new possibilities of sales. The productive capacity and financial resources therefore may be determining factors in the preparation of the budget program; but the sales estimate, if and as affected by these factors, controls the final determination of operating requirements.

**The budget as an instrument of control.** Although a budget should be of assistance to management in the control of operations, it is necessary to keep in mind the essential distinction between the sources of control and the budget as an instrument of control. The budget charts the course toward certain objectives, but does not of itself prevent deviation from the course or insure the attainment of the objectives. The actual control necessary to keep on the charted course or to get back to it is one of the primary functions of management.

The charted course of expected results may be regarded as represented by the line traced by a point that is being pushed by a number of forces acting in different directions. Any change in the amount or direction of one or more of these forces changes the direction of the line. The function of the budget is to chart the intended net results of operations, not only as to the course thereof, but in terms of the amount and direction of the determining forces. If, upon a comparison of the forecast and the achievement, the

actual course is found to be passing through point *B* instead of the charted point *A*, the sources of the variation may be identified by a comparison of the several forces which resulted in the actual course with those intended to have been exerted to produce the desired result. This localization of the sources of variation from a charted course directs the search for possible corrective measures.

**Budget comparisons.** The comparison of the results finally attained with those forecast in a budget is a valuable means of measuring the effectiveness of actual operations. Comparisons with the results of operations of previous periods are not always sufficient or satisfactory, and may be entirely misleading. For example, in a business in which the methods of distribution are undergoing frequent changes to meet changing market conditions a comparison of the costs of distribution in one year or month with those of the preceding year or month is of little value. Analysis of the differences is complicated by the changes in methods. But a comparison of the actual distribution costs for any period with the anticipated costs shown by a budget which was based on the methods actually in operation is, at least with reference to the standards established by the budget, a check on the efficiency of the distribution department.

**Enforcing or revising the budget.** Actual operating results should be compared with the budget estimates at frequent intervals so that differences may be determined and analyzed in time for corrective measures to be effective.

If a comparison of achievements with the budget discloses unsatisfactory results, steps may be taken to enforce the budget by bringing pressure to bear upon the individuals responsible for the unsatisfactory results, or by correcting conditions which contributed to the unsatisfactory results.

Comparisons of the budget and the accomplished operations may, however, indicate the advisability of modifying the budget rather than attempting to enforce it. If the comparisons indicate that, in the preparation of the budget,

there was some failure to give consideration to all of the controlling conditions, or if conditions are found to have changed materially, the remedy lies in the correction of the budget.

The budget should reflect, rather than dictate, the policies of the management, for it is nothing more than an instrument to be used by the management in planning and controlling operations by forecasting the results of a proposed operating program so that they may be visualized with some degree of accuracy before the program is undertaken. If there comes a time when the budget is recognized as no longer representing an attainable or advisable program, it should be revised.

**Length of the budget period.** The period to be covered by the budget depends, to some extent, on the type of business, but it should be long enough to include complete cycles of:

- (1) Seasonal fluctuations of volume.
- (2) Production.
- (3) Merchandise turnover.
- (4) Financial operations.

Unless these factors receive adequate consideration, the budget will not forecast the results of operations over a long enough period to disclose any fundamental weakness and, in that respect, will be incomplete.

On the other hand, a detailed budget should not cover too long a period of time. Many conditions which cannot be foreseen at the time of its preparation may materially affect the operating program. As a rule a more accurate forecast can be made for three months than for a year, although much is to be gained by having a tentative plan for a year in advance.

For the average manufacturing or trading business, the necessary or desirable limitations in each direction usually will be met by the preparation of a budget by quarters for a year, and the division of the budget for the first quarter



into budgets for months. The budget for the year by quarters serves primarily to reflect the general plans and policies of the management for a year in advance, while the budget for one quarter by months is the actual basis of control of current operations. When this procedure is followed, the budget for the year is revised at the end of each quarter to cover a year in advance, by dropping the quarter just completed and projecting the budget to include an additional quarter at the end. To illustrate: on January 1 the budget for the year will include, by quarters, the period from January 1 to December 31, and the budget for the quarter from January 1 to March 31 will be detailed by months. As of April 1, the budget for the year will be revised to cover the period from April 1 to the following March 31, and the current budget will be prepared, by months, for the period from April 1 to June 30.

Sometimes the current budget is prepared by quarters only, rather than by months; but this is not satisfactory, because the period between comparisons of results with the budget is too long. The most successful method is to break down each current quarterly budget into monthly divisions so that monthly comparisons can be made. In general the budget should be divided into the shortest periods possible in order to permit the making of frequent comparisons, so that defects can be promptly discovered and corrected, and the program can be made effective. But since the calendar month is almost universally the normal accounting period, more frequent comparisons are rarely practicable.

**Who makes and administers the budget?** The procedure involved in the preparation and administration of the budget will differ according to the nature of the business.

In a small business the preparation of the budget probably will be delegated to the accountant, who should work in close co-operation with the general management and the heads of departments. The co-operation of the department heads may extend, especially in larger organizations, to the preparation by them of the departmental budgets. To the

extent that the preparation of the departmental budgets becomes so specialized, the function of the central control of the budget procedure becomes one of supervision and of consolidating the results into a general budget for the organization; and, as the result of the conditions which brought about this departmental specialization, the supervision of the preparation and administration of the budget will have become a special function in itself, performed by the accounting department or by a separate department.

Budgetary practice has developed along these lines in the larger business organizations to the point of being an independent function, under the supervision of a director of the budget responsible directly, or through a budget committee, to the management. The discussion of procedure in this book, although not dealing with figures which would necessarily imply an organization of such magnitude, is based on the assumptions that the departmental budgets are prepared, to the greatest possible extent, by the heads of departments, under the supervision of a director of the budget, who is charged with the assembly and co-ordination thereof, and with the development and analysis, for the information of the management, of differences between the budgeted and the actual results.

The supervision of the preparation of the departmental budgets implies, on the part of the director of the budget, sufficient familiarity with the principles and procedure of general and cost accounting and with some of the more or less technical phases of selling, production, purchasing, and financial operations, to qualify him to check the application of the basic data entering into these budgets and to assure himself that the controlling factors have received adequate consideration. For this reason it will at times be expedient to discuss herein at some length matters which pertain to general management or to specialized fields which are pertinent subjects of consideration in the preparation of a budget.



## CHAPTER 2

### THE BUDGET ILLUSTRATED

**Purpose of this chapter.** A comprehensive budget includes a number of co-ordinated estimates of the operations during a future period and the financial condition at the end of the period. The estimated statements may include the following:

- Profit-and-loss statement, and supporting
  - Statement of cost of goods sold,
  - Statement of distribution expenses,
  - Statement of administrative expenses,
  - Statement of financial income and expense.
- Statement of cash receipts and disbursements.
- Balance sheet.

Throughout this book there is developed, for purposes of illustration, the budget of a hypothetical corporation, The Normadale Company. The estimates of sales, expenses, and other details are developed step by step through a series of chapters and are assembled in a complete and co-ordinated budget for a year, subdivided by quarters and months.

It is believed that the nature and purpose of the detailed estimates which are developed in subsequent chapters will be more clearly understood if the reader is given in advance a general conception of the completed budget. It seems advisable, therefore, to present in this chapter a bird's-eye view of the budget as a whole—in somewhat condensed form and with little explanation of the methods used in assembling the data.

Subsequent chapters contain detailed explanations of the methods of making the estimates which are embodied in the budget statements.

**The sales budget.** The Normadale Company sells three products. The sales estimates for 1940 are shown below.

Table 1

THE NORMADALE COMPANY			
Sales Estimates			
For the Year Ending December 31, 1940			
Product	Units	Selling Price	Total Sales
A.....	79,700	\$12.00	\$ 956,400
B.....	108,150	25.00	2,703,750
C.....	12,000	50.00	600,000
Total.....			<u>\$4,260,150</u>

**The production budget.** After the sales estimates have been tentatively approved, the next step in the development of the complete budget is the determination of the quantities of finished goods which must be produced to meet the requirements of the estimated sales and to provide for the inventories which it is desired to have on hand at the close of the budget period.

The following table shows the computation of the quantities (not dollar amounts) of the required production.

Table 2

THE NORMADALE COMPANY			
Computation of Required Production			
For the Year Ending December 31, 1940			
	Products		
	A	B	C
Quantity required to meet sales estimates (Table 1).....	79,700	108,150	12,000
Desired inventory, December 31, 1940.....	<u>17,500</u>	<u>28,000</u>	<u>3,500</u>
Total.....	97,200	136,150	15,500
Less inventory, December 31, 1939.....	<u>16,000</u>	<u>25,000</u>	<u>1,500</u>
Required production.....	<u>81,200</u>	<u>111,150</u>	<u>14,000</u>

It is to be noted at this point, with respect to the finished goods inventory as of December 31, 1939 (and other inventories as of that date, used in subsequent computations), that effective budgeting requires that the budget be com-

pleted before, or early in, the period to be covered by it. This budget covers the year 1940 and the work of compiling it should have been started sometime during the latter part of 1939. At that time the December 31, 1939 inventories would not be known. It is therefore assumed that the tentative first draft of the budget would be based on estimates as of that date, and corrections to actual figures would be made as soon as possible after that date.

The desired inventory quantities as of December 31, 1940 would be established by the management.

**The materials budget.** Seven different materials<sup>1</sup> are used in the manufacture of the company's three products. The quantities (not dollar costs) of the materials required for the production of goods in the quantities budgeted in Table 2 are shown below in Table 3.

Table 3

**THE NORMADALE COMPANY**  
**Materials Required for Production (in Units)**  
**For the Year Ending December 31, 1940**

<u>Material</u>	<u>Product</u>			<u>Total</u>
	<u>A</u>	<u>B</u>	<u>C</u>	
R. ....	144,536	205,628	22,820	372,984
S. ....	6,496	8,892	1,120	16,508
T. ....		555,750	105,000	660,750
V. ....	162,400	277,875	42,000	482,275
X. ....			179,760	179,760
Y. ....	1,323,560	2,056,275	177,100	3,556,935
Z. ....	<u>284,200</u>	<u>555,750</u>	<u>87,500</u>	<u>927,450</u>

**The purchase budget.** The materials budget (Table 3) shows the estimated material quantities to be *used* in production. The estimating of quantities to be *purchased* re-

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<sup>1</sup> The materials estimate deals only with direct or productive material; similarly, the labor estimate (Table 5) deals only with direct or productive labor. As materials and labor of this class are the subject of frequent reference, the text is simplified by the omission of the qualifying adjectives. Therefore the terms "material" and "labor" as used throughout this book will be understood as referring to direct material and labor unless the context indicates otherwise.

quires consideration of the quantities on hand at the beginning of the period, the quantities to be used (Table 3), and the inventory quantities desired at the end of the budget period. The data used and the estimates determined are shown in Table 4. The costs are estimated by applying unit prices forecast by the purchasing department.

Table 4

**THE NORMADALE COMPANY**  
**Computation of Materials to be Purchased**  
**For the Year Ending December 31, 1940**

Material	Quantity Required for Pro- duction (Table 3)	Add Desired Inven- tory, Decem- ber 31, 1940	Deduct Inven- tory, Decem- ber 31, 1939	Quantity Required to be Purchased	Unit Price	Cost of Desired Inven- tory, Decem- ber 31, 1940	Cost of Mate- rials Required to be Purchased
		31, 1940	31, 1939			31, 1940	Purchased
R ...	372,984	75,000	80,000	367,984	\$1.00	\$ 75,000	\$ 367,984
S ...	16,508	3,500	2,500	17,508	5.00	17,500	87,540
T....	660,750	150,000	100,000	710,750	.50	75,000	355,375
V....	482,275	75,000	90,000	467,275	.20	15,000	93,455
X...	179,760	30,000	10,000	199,760	.75	22,500	149,820
Y ...	3,556,935	500,000	400,000	3,656,935	.10	50,000	365,693
Z....	927,450	175,000	150,000	952,450	.20	35,000	190,490
Total						\$290,000	\$1,610,357

It will be observed that the foregoing table includes a valuation of the materials inventory desired at the end of the budget period. This value is required later and can conveniently be computed at this point.

**The labor budget.** The estimated cost of labor required for the production of goods in the quantities budgeted in Table 2 are shown below:

Table 5

**THE NORMADALE COMPANY**  
**Labor Cost**  
**For the Year Ending December 31, 1940**

Product	Cost
A.....	\$121,800
B.....	361,237
C.....	<u>70,000</u>
Total.....	<u>\$553,037</u>

**Service department budgets.** As a first step in the estimating of expenses, it is advisable to prepare budgets for the service departments, which are not directly concerned with the production or disposal of goods, but which serve other departments. To illustrate such a service department budget, we shall assume that The Normadale Company owns its building, assembles the operating expenses thereof, and apportions the total expense to the several operating departments as rent. The building expense estimate is shown below.

Table 6

THE NORMADALE COMPANY	
Building Expenses	
For the Year Ending December 31, 1940	
Taxes .....	\$ 40,000
Depreciation.....	80,000
Insurance.....	12,000
Repairs.....	64,000
Total.....	<u>\$196,000</u>
To be distributed, as rent to:	
Manufacturing expenses.....	\$180,000
Administrative expenses.....	<u>16,000</u>
Total above.....	<u>\$196,000</u>

**The manufacturing expense budget.** The manufacturing expense estimates for the budget year are shown in the following statement:

Table 7

THE NORMADALE COMPANY	
Manufacturing Expenses	
For the Year Ending December 31, 1940	
Indirect labor.....	\$ 70,000
Indirect material.....	75,000
Repairs.....	60,000
Power.....	42,000
Heat.....	16,500
Light.....	5,500
Factory rent (Table 6).....	180,000
Depreciation ..	240,000
Insurance.....	22,000
Factory office expense.....	<u>18,000</u>
Total.....	<u>\$729,000</u>



**Inventories.** The material, labor, and manufacturing expense estimates have now been completed. To estimate the cost of goods manufactured and the cost of goods sold, it is necessary to have data relative to the inventories at the beginning and at the end of the year.

The inventories at the beginning of the year are presumed to be known.

The inventory of materials at the end of 1940 was estimated in Table 4.

To simplify the illustration it is assumed that the work in process inventory is the same at the end as at the beginning of the year.

The finished goods inventory at the end of the year is estimated in Table 8; the unit costs were computed by a process described in a later chapter.

Table 8

**THE NORMADALE COMPANY**  
Computation of Value of Desired Inventory of Finished Goods  
December 31, 1940

<u>Product</u>	<u>Quantity (Table 2)</u>	<u>Unit Cost</u>	<u>Value</u>
A.....	17,500	\$ 8.387	\$146,773
B.....	28,000	15.634	437,752
C.....	3,500	30.117	105,410
Total.....			<u>\$689,935</u>

The inventories of materials, work in process, and finished goods at the beginning and end of the budget year are summarized below:

Table 9

**THE NORMADALE COMPANY**  
Statement of Inventories  
December 31, 1939 (Actual) and 1940 (Estimated)

	<u>December 31</u>	
	<u>1939</u>	<u>1940</u>
Materials.....	\$238,000	\$ 290,000
Work in process.....	125,000	125,000
Finished goods.....	570,218	689,935
Total.....	<u>\$933,218</u>	<u>\$1,104,935</u>

**Estimated cost of sales.** All necessary data now being available, the estimated cost of the budgeted sales may be computed as in Table 10.

Table 10

**THE NORMADALE COMPANY**  
**Computation of Estimated Cost of Goods Sold**  
**For the Year Ending December 31, 1940**

<b>Materials:</b>		
Inventory, December 31, 1939 (Table 9).....	\$ 238,000	
Purchases (Table 4).....	<u>1,610,357</u>	
Total.....	\$1,848,357	
Less inventory, December 31, 1940 (Table 9)....	<u>290,000</u>	\$1,558,357
Labor (Table 5).....		553,037
Manufacturing expenses (Table 7).....		<u>729,000</u>
Total cost of production.....		\$2,840,394
Inventory of finished goods, December 31, 1939 (Table 9).....		<u>570,218</u>
Total.....		\$3,410,612
Desired inventory of finished goods, December 31, 1940 (Table 8).....		<u>689,935</u>
Estimated cost of goods sold.....		<u><u>\$2,720,677</u></u>

**Other expense and income budgets.** Tables 11, 12, and 13 show the estimates respectively for distribution expense, administrative expense, and financial income and expense.

Table 11

**THE NORMADALE COMPANY**  
**Distribution Expenses**  
**For the Year Ending December 31, 1940**

Sales managers' salaries. . . . .	\$ 28,000
Rent of sales office.....	18,000
Sales clerical expense. . . . .	15,000
Salesmen's salaries.....	150,000
Commissions and bonus.....	88,888
Delivery expenses.....	99,925
Traveling expenses.....	45,000
Advertising.....	<u>132,067</u>
Total.....	<u><u>\$576,880</u></u>

Table 12

THE NORMADALE COMPANY	
Administrative Expenses	
For the Year Ending December 31, 1940	
Executive salaries.....	\$130,000
Office rent (Table 6).....	16,000
Depreciation of office equipment.....	16,000
Insurance.....	1,500
Taxes (corporate).....	8,800
Office salaries.....	104,000
Office supplies.....	18,000
Bad debts.....	63,900
Postage.....	4,500
Telephone and telegraph.....	6,000
Credit and collection expense.....	16,000
Professional service.....	8,000
Unclassified expense.....	6,000
Repairs of office equipment.....	1,000
Light.....	1,500
Total.....	<u>\$401,200</u>

Table 13

THE NORMADALE COMPANY	
Financial Income and Expense	
For the Year Ending December 31, 1940	
Financial income:	
Discount on purchases.....	<u>\$ 77,807</u>
Financial expenses:	
Interest:	
Bank loans.....	\$36,000
Mortgages.....	<u>27,750</u>
	\$ 63,750
Discount on sales.....	<u>81,474</u>
Total.....	<u>\$145,224</u>

**Statement of estimated profit and loss.** From the estimates now available it is possible to construct a statement of estimated profit and loss and surplus for the budget year, as shown in Table 14.

Table 14

**THE NORMADALE COMPANY**  
**Computation of Estimated Profit and Loss and Surplus**  
**For the Year Ending December 31, 1940**

Sales (Table 1) .....		\$4,260,150
Cost of sales (Table 10) .....		<u>2,720,677</u>
Gross profit .....		\$1,539,473
Operating expenses:		
Distribution expenses (Table 11) .....	\$576,880	
Administrative expenses (Table 12) .....	<u>401,200</u>	978,080
Net profit from operations .....		\$ 561,393
Financial expenses (Table 13) ..	\$145,224	
Less financial income (Table 13) .....	<u>77,807</u>	67,417
Net profit before provision for federal income taxes ..		\$ 493,976
Provision for federal income taxes .....		<u>59,277</u>
Net profit .....		\$ 434,699
Surplus, December 31, 1939 .....		556,885
Total .....		\$ 991,584
Less dividends .....		<u>300,000</u>
Surplus, December 31, 1940 .....		<u>\$ 691,584</u>

**Budget of capital asset additions.** The production program for the budget year, or the prospective programs for subsequent periods, may necessitate plant extensions. These should be made the subject of a capital additions budget, as illustrated below:

Table 15

**THE NORMADALE COMPANY**  
**Capital Additions**  
**For the Year Ending December 31, 1940**

Land .....	\$ 75,000
Buildings .....	335,000
Equipment .....	<u>200,000</u>
Total .....	<u>\$610,000</u>

**The cash budget.** The cash budget consists of a forecast of cash receipts and disbursements. The estimated receipts include the probable collections on accounts and the proceeds of any proposed financing. The disbursements are based upon the purchase and expense budgets previously prepared. The cash disbursements do not, however, in all cases agree with the estimated expenses because of such items as bad debts and depreciation, unpaid liabilities, and deferred and accrued expenses. These differences are fully reconciled in subsequent chapters. The cash estimates for the year are summarized below:

Table 16

**THE NORMADALE COMPANY****Computation of Cash Balance****On December 31, 1940**

Cash balance, December 31, 1939. . . .		\$ 200,000
Estimated receipts:		
Accounts receivable—collections. . . .	\$3,992,218	
Proceeds of mortgage notes. . . . .	150,000	
Proceeds of preferred stock. . . . .	<u>250,000</u>	
Total estimated receipts. . . . .		<u>4,392,218</u>
Total. . . . .		<u>\$4,592,218</u>
Estimated disbursements:		
Accounts payable—for material purchases. . . . .	\$1,478,326	
Labor. . . . .	553,037	
Building, manufacturing, distribution, and administrative expenses	1,356,680	
Interest . . . . .	61,000	
Additions to capital assets. . . . .	610,000	
Dividends. . . . .	<u>300,000</u>	
Total estimated expenditures. . . .		<u>4,359,043</u>
Cash balance, December 31, 1940. . . .		<u><u>\$ 233,175</u></u>

**The projected balance sheet.** A balance sheet as of the end of the budget period forecasts the effect of the operating program upon the financial condition of the business. To facilitate comparisons and analyses, such a balance sheet is usually shown with a balance sheet as of the beginning of the period, as in Table 17.

Table 17

## THE NORMADALE COMPANY

Comparison of Estimated Balance Sheet as of December 31, 1940

With Balance Sheet as of December 31, 1939

	Actual December 31, 1939	Estimated December 31, 1940
	Assets	
Current assets:		
Cash. . . . .	\$ 200,000	\$ 233,175
Accounts receivable. . . . .	\$ 800,000	\$ 986,458
Less reserve for bad debts . . . . .	80,000	143,900
Inventories:		
Materials. . . . .	\$ 238,000	\$ 290,000
Work in process. . . . .	125,000	125,000
Finished goods . . . . .	570,218	689,935
Total current assets. . . . .	\$1,853,218	\$2,180,668
Prepaid expenses:		
Unexpired insurance. . . . .	\$ 12,000	\$ 13,500
Prepaid interest. . . . .	3,000	3,000
Fixed assets:		
Land. . . . .	\$ 225,000	\$ 300,000
Buildings. . . . .	2,500,000	2,835,000
Equipment. . . . .	2,460,000	2,660,000
Total. . . . .	\$5,185,000	\$5,795,000
Less reserve for depreciation	1,200,000	1,536,000
Total assets. . . . .	\$5,853,218	\$6,456,168
	Liabilities and Net Worth	
Current liabilities:		
Notes payable. . . . .	\$ 600,000	\$ 600,000
Accounts payable. . . . .	100,000	154,224
Accruals:		
Local taxes. . . . .	\$ 38,000	\$ 40,000
Interest. . . . .	8,333	11,083
Federal income taxes. . . . .	50,000	59,277
Total current liabilities	\$ 796,333	\$ 864,584
Mortgages payable. . . . .	500,000	650,000
Net worth:		
Preferred capital stock. . . . .	\$1,500,000	\$1,750,000
Common capital stock. . . . .	2,500,000	2,500,000
Surplus. . . . .	556,885	691,584
Total liabilities and net worth. . . . .	\$5,853,218	\$6,456,168

**Approval of the budget.** The various estimates or budgets have been presented in this chapter as successive steps, one of which was completed before the next was commenced. Actually, several of the budget estimates may be in process of development concurrently.

Also, for purposes of simplicity of presentation, there have been introduced none of those situations, in reality so likely to occur, which may develop at any point and necessitate the reconsideration and revision of estimates already made.

After the budget has been completed, it should be carefully studied by the management to see whether or not it constitutes the best possible program for the co-ordination and utilization of the various functions and departments of the business, and whether the estimated profit-and-loss statement and the balance sheet indicate that a satisfactory net profit will be earned and a satisfactory financial condition will result.

If the indicated results are unsatisfactory, the plan of operations should be canvassed for possible changes which will produce, or more nearly approximate, the results desired. The estimated effect of such changes will be reflected by revisions of the budget. The budget, as finally revised, becomes the officially adopted program.

## CHAPTER 3

### THE SALES BUDGET

**Organization of the sales department.** The procedures to be followed in assembling the information which ultimately will take shape in the sales budget will depend to a considerable extent upon the distribution methods in use. Sales may be made direct to consumers, through jobbers, agencies, branches, or district sales offices, or by a force of salesmen under one central jurisdiction. As this discussion cannot cover all varieties of situations, it will be necessary to assume some reasonably typical form of sales organization as the basis of the development of the subject. It will be assumed, therefore, that The Normadale Company distributes its product through district sales organizations which report to a general sales office. The district sales offices direct the efforts of the individual salesmen, each of whom covers a specified territory.

**Data needed for estimated sales.** The sales estimates should be as accurate as possible because they serve as the basis of the entire budget. To a considerable extent the budgets of other departments merely result from computations based on the budgeted volume of sales, and such budgets will be accurate only to the extent that the sales estimates are realized. Yet it happens not infrequently that the operating departments are required to adapt their programs to sales estimates made without adequate research, either on the part of the sales department or from the broader point of view of the general management.

The data required for an intelligent forecast of sales are obtained by:

- (1) Analysis of past results.
- (2) Market analysis.
- (3) Analysis of the status of each product with respect to the market and as to profits.



These data should be assembled and made available for study before any actual work on the budget is started. Many businesses maintain special statistical departments for the purpose of keeping this information constantly up to date.

**Analysis of past results.** To serve as a satisfactory basis of a budget, the sales estimates should be attainable. The best evidence that a sales program is attainable is the fact that it is based, to a large extent, upon past performance. Data as to past performance should therefore be assembled in such a way as to be of maximum value in estimating future sales.

The principal items of information with respect to each product which should be shown by an analysis of past results are: orders received, cancellations, deliveries, and returns. The form in which such data may be assembled is a matter of convenience; a suggested form is shown as Table 18.

Table 18

Sales Analysis					
For the period from _____ To _____ Product _____					
Week ended	Orders received	Cancellations	Deliveries	Returns	Net deliveries

Such an analysis, to be of the utmost value, should be prepared (as to each product) for the business as a whole, for each sales district, and for each salesman's territory. If the analysis is being undertaken for the first time, the question as to how far back it should extend is a matter of practicability. If it has been carried on for some time, the analyses for prior years will be immediately available, and statistical procedures presumably will have been developed

for the current accumulation of the required data.

**Market analysis.** An aggressive sales manager is not satisfied with merely exceeding last year's sales; he wants to know whether he is obtaining his share of the potential consumer demand, as indicated by a market analysis.

Market analysis means the collecting of all the pertinent information available in regard to a given territory and so organizing and analyzing the information that a business can determine what its position in that territory is and should be. It takes into account not only the past and present demand and the competition from businesses in the same line, but the competition offered by other types of products and the probable growth or decline of such commodity competition.

The required information may be obtained by means of a questionnaire sent directly to consumers or through retailers or jobbers. If the returns from the questionnaire are not satisfactory, representatives of the company or professional market analysts may be sent into the field to collect the data. When the analysis is complete, the sales department should be in possession of the information necessary to estimate the "sales opportunity," or maximum sales possibilities, in each sales district and in each salesman's territory. The computation of such estimates implies no necessary expectation of immediate, or even ultimate, attainment thereof.

**Product analysis.** Data in regard to each product should be analyzed to determine whether:

- (1) There is a demand therefor.
- (2) The demand is created at too great an expense.
- (3) The product is being sold at a profit.
- (4) It fits into the general distribution scheme.
- (5) It is superior or inferior to that of competitors.
- (6) Sales thereof should be encouraged or the product ultimately be discontinued.

A study of the volume of sales by products may be very

illuminating. For example, an actual survey indicated that a chain store obtained 80 per cent of its sales volume from only 20 per cent of the items carried. An analysis of the sales of a clothing store showed that 87 per cent of the suits sold were in four price classifications, although stock was carried in twelve classifications. A manufacturer found that 96 per cent of his sales were made to half his accounts. A selling agent for nine products sold 95 per cent of each product to one-half his accounts, and 5 per cent to the other half.

Such an analysis of sales by products, together with a proper allocation of distribution costs, may disclose the fact that certain products are sold at a net loss. With such information available, the management may attempt to budget the sales in a manner to eliminate such losses, where possible, and thereby produce a larger net profit.

**Making the sales estimates.** Many of the difficulties encountered in making sales quotas effective are due to the not uncommon practice of determining the quotas at the general office. The person responsible therefor in that case may not be familiar with the conditions which exist in the sales territory or may fail to give these conditions and other controlling factors proper consideration. As a result, the quotas may not be satisfactory to the sales force.

These difficulties may to a great extent be avoided by permitting the salesmen to take an active part in preparing the estimates. One naturally feels more responsibility for the success of a plan which he has helped to formulate than for one formulated entirely by someone else. Moreover, salesmen and sales managers should be in the best position to make intelligent estimates, as they presumably are familiar with the conditions within their respective territories.

Assuming that the management recognizes the desirability of having the estimates originate with the individual salesmen, the salesmen and the district sales offices will be given all available information relative to the past results, the sales opportunity, and the policy of the management

with respect to each item. The steps in the subsequent procedure may be indicated as follows:

- (1) Each salesman prepares an estimate of the orders he expects to be able to take.
- (2) The salesmen's estimates are reviewed by the district managers.
- (3) The district estimates are reviewed by the general sales manager.
- (4) The summarized estimate is reviewed by the general management.
- (5) The tentatively approved quantity estimates of orders are converted into estimates of shipments stated in quantities and at sales prices.

**Salesmen's estimates.** On the basis of the statistical and other information furnished him, as well as his own knowledge of conditions in his territory, each salesman will forecast his sales for the budget period. Table 19 is a suggested form to be used by the salesman.

Table 19

Salesman's Estimate								
Salesman_____			Territory_____			Product_____		
Week Ending	Previous Years' Sales			Sales Opportunity	Salesman's Estimate			District Office Estimate
	1937	1938	1939		Variation from 1939		1940	
					Increase	Decrease		
Explanation of variation from 1939_____								

All information and estimates will be entered on this form in terms of quantities rather than value.

The information as to the sales of the product in previous years and the sales opportunity will have been entered on the form before it is sent to the salesman. The data for previous years should show the amounts of uncanceled orders. The amounts shown for each week should be quantities ordered rather than quantities shipped.

The salesmen's estimates will naturally be in terms of expected orders, without reference to possible cancellations. The prospective variations from the sales of previous years should be explained at the bottom of the report.

**District office estimates.** The salesmen's estimates will be accepted or revised by the district sales managers in the light of their knowledge of past results, sales opportunity, and general conditions in their districts. No uniform ratio of increase over the previous year should be expected. The largest increases should be demanded of those salesmen whose ratios of past sales to sales opportunity have been the lowest. If a salesman is already getting his share of the consumer demand, it may be unreasonable to expect any increase; and if dealers have been overloaded, decreases may be expected. No salesman should be permitted to undertake a task that is unreasonable, and each salesman should be able to show definitely how he expects to secure any estimated increase.

If it is the policy to allow the salesmen to participate to the greatest possible extent in the preparation of the budget, no radical change in a salesman's estimates should be made without consultation with him. Whether arbitrary changes should be made in the event of a failure to agree is a question of general policy.

The approved or revised estimate is entered in the last column of the salesman's report, and all salesmen's reports for the district are summarized, by products, on some form similar to Table 20.

Table 20

District Manager's Sales Estimate						
District_____			Product_____			
<u>Week Ended</u>	<u>Sales 1937</u>	<u>Sales 1938</u>	<u>Sales 1939</u>	<u>Sales Opportunity</u>	Estimate for 1940	
					<u>Salesmen</u>	<u>District Office</u>

**General sales office estimates.** The district summaries are sent to the general sales manager, who studies them in the same way that the district managers studied the salesmen's estimates. The same policies with regard to changes therein will presumably be observed. When and as finally approved or amended by the general sales manager, the district estimates are summarized by products for the organization.

**Review by general management.** The general management may consider it expedient to revise the sales department's estimates downward to some extent to offset the general optimism of the sales mind. The sales point of view is necessarily optimistic, whereas the basis for budgeting the other departmental activities must necessarily be conservative in order to avoid overestimates of production and of selling and administrative expenses.

Just what arbitrary revision, if any, of the sales department's estimates should be made depends upon the manner in which the sales executives have dealt with the salesmen with respect to their quotas in the past. If the sales management has been satisfied with anything short of full attainment of quotas in the past, the proposed quotas should be correspondingly discounted. If, however, each salesman

has been trained to understand that nothing short of full attainment of quotas is satisfactory, the budget prepared and approved by the sales department may generally be taken at face value as a conservative estimate.

**Conversion of orders into shipments.** Since the most effective operation of a budget requires frequent comparison of the budget with the records of results, the budget should be stated on the same basis as that on which the accounts will be kept.

Although the salesman regards an order as a sale, it is not a sale for accounting purposes until the goods are shipped. Therefore the sales department's estimates of orders to be received during each period should be converted into a budget of prospective shipments. To make this conversion it will be necessary to take into consideration the probable effect of cancellations of orders and any customary lag between the receipt of orders and the shipment of goods.

Operating statements usually are not prepared from the accounts more frequently than once a month. To facilitate the comparison of budgeted sales and actual sales, it will be desirable to convert the estimates from a weekly basis (if that was used by the sales department) to the monthly basis used by the accounting department.

**Application of sales prices.** After the sales have been estimated in terms of quantities, they should also be expressed in terms of dollars. Prospective changes in unit selling prices should be given consideration. Competition may make it necessary to revise prices downward, or increased costs may make it advisable to revise them upward.

On the general principle of anticipating losses but not profits, it is conservative to show immediately the effect of any prospective downward revisions in prices, while giving no effect in the budget to possible upward revisions until the entire budget has been tentatively prepared and costs and profits have been tentatively determined. Another reason for this treatment is that upward price revisions are

usually optional, whereas downward revisions may be unavoidable.

**Approval of the sales budget.** The sales estimates developed to the point described should still be regarded as no more than a tentative sales budget. They can not be regarded as an approved budget until they have been found to serve as a satisfactory basis for a co-ordinated program for the business as a whole.

Copies of the tentative sales budget should be given to the production manager, the supervisor of materials, the treasurer, the controller, and others concerned with the preparation of departmental budgets.

If it is immediately obvious that the sales estimates either subject other departments to impracticable requirements or fail to provide for the adequate utilization of their facilities, it may be necessary to scale down the sales estimates or consider the possibility of increasing them; in such cases the sales estimates should be revised before the budgets for the other departments are prepared.

If the tentative sales budget appears in general to be acceptable, the work of developing the other departmental budgets may be begun. As the budget as a whole begins to take form, problems may develop which will suggest the advisability of changes in the sales program to meet conditions in other departments; or measures of correction may be taken in other departments and the tentative sales budget be allowed to stand. This balancing of considerations and the consequent adjustment of the complete budget will continue until, if possible, a satisfactory program of operations has been developed. The sales budget is then finally approved.

As soon as the sales budget has been approved, the district sales managers and the individual salesmen should be informed of the amounts of their quotas, which may differ in greater or less degree from the estimates originally submitted by them.

**The sales budget illustrated.** The budget of The Norma-



Table 21

## THE NORMADALE COMPANY

## Sales Budget

For the Year Ending December 31, 1940

Distribution of Sales by  
Districts and by Products:

District	Product A—Price \$12.00		Product B—Price \$25.00		Product C—Price \$50.00		Total	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
#1.....	8,100	\$ 97,200	13,200	\$ 330,000	1,050	\$ 52,500	22,350	\$ 479,700
#2.....	8,500	102,000	13,000	325,000	1,250	62,500	22,750	489,500
#3.....	4,500	54,000	8,400	210,000	900	45,000	13,800	309,000
#4.....	11,400	136,800	15,400	385,000	1,750	87,500	28,550	609,300
#5.....	11,000	132,000	15,750	393,750	1,800	90,000	28,550	615,750
#6.....	8,500	102,000	7,000	175,000	1,500	75,000	17,000	352,000
#7.....	7,200	86,400	6,000	150,000	800	40,000	14,000	276,400
#8.....	9,500	114,000	13,200	330,000	1,150	57,500	23,850	501,500
#9.....	11,000	132,000	16,200	405,000	1,800	90,000	29,000	627,000
Total.....	79,700	\$956,400	108,150	\$2,703,750	12,000	\$600,000	199,850	\$4,260,150

Distribution of Sales by  
Periods and by Products:

Period	Product A		Product B		Product C		Total	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
First quarter:								
January.....	6,137	\$ 73,644	8,112	\$ 202,800	900	\$ 45,000	15,149	\$ 321,444
February.....	4,910	58,920	10,274	256,850	1,260	63,000	16,444	378,770
March.....	6,487	77,844	8,652	216,300	1,440	72,000	16,579	366,144
Total.....	17,534	\$210,408	27,038	\$ 675,950	3,600	\$180,000	48,172	\$1,066,358
Second quarter.....	22,316	267,792	21,630	540,750	2,400	120,000	46,346	928,542
Third quarter.....	25,804	306,048	27,037	675,925	1,800	90,000	54,341	1,071,973
Fourth quarter.....	14,346	172,152	32,445	811,125	4,200	210,000	50,991	1,193,277
Total.....	79,700	\$956,400	108,150	\$2,703,750	12,000	\$600,000	199,850	\$4,260,150

dale Company covers the calendar year 1940, divided into quarters; the first quarter is divided into months. The summarized sales budget for the business as a whole, classified by products, districts, and periods, is shown in Table 21.

A sales budget for each district and one for each salesman should be prepared as illustrated in Table 21, showing the distribution of sales by periods and by products.

Each salesman's quota should be compared monthly or at other intervals with his sales. If there is no material lag between orders and shipments and if the problem of cancellations is not a serious one, the recorded shipments against each salesman's orders can be compared directly with his monthly budget. But if, for any reason, material variations exist between the orders taken by a salesman during a month and the shipments thereagainst during the same month, provision must be made for reconciling these variations.

**Application to various types of business.** The principles involved in the preparation of a sales budget as thus far explained apply particularly to a business manufacturing products for stock. It is more difficult to estimate the volume of a business which manufactures to special order. It may be necessary to estimate sales broadly on a value basis. In a business manufacturing a product entirely to special order, the production and purchase budgets will be based, as a matter of form, on the budgeted sales, but the actual production and related activities will necessarily proceed on the basis of orders received. The fact that no finished goods inventories are carried to level the production and to hasten deliveries will affect the allocation of shipments to given periods. A budget for this type of business should not be prepared for too long a period in advance.

In a merchandising business, either jobbing or retail, the stock is usually classified by departments and the estimates are prepared on the basis of departmental classifications rather than numerous individual items. As a natural consequence, the sales are estimated in terms of total dollar

amounts rather than quantities. The estimates are made after consideration of past results, market and product analyses, and the prospective appropriations for sales promotion.

Financial institutions such as banks and investment brokerage houses derive their ordinary income from discount and commissions. In estimating income they must take into consideration the discount or interest on time loans, demand loans and commercial paper, the fees on real estate and trust department transactions, and commissions or profits on sales of securities. The forecasts of operations are made on the basis of past results and the opinions of those in charge of the activities.

In a nonprofit organization, such as a fraternity, a society, or a club, the principal sources of income are initiation fees and membership dues. Income from initiation or entrance fees is estimated on the basis of experience and the expectations of the membership committee. Income from dues is estimated on the basis of the periodical dues and the prospective membership.

## CHAPTER 4

### THE PRODUCTION BUDGET

**Purpose of the production budget.** A well-planned and properly co-ordinated program of production is an element of major importance as an aid to management in exercising the control necessary to insure the proper execution of the whole budget program. The production budget tends to insure the production of finished goods in quantities sufficient to meet the requirements of the sales budget, without the accumulation of excessive inventories. Inadequacies of plant facilities presumably are brought to light by it so that the management can provide the necessary additions in advance. The production budget is an important step in the determination of unit and total costs of the finished product.

**The budget for the year.** The production budget of The Normadale Company for the budget year as a whole was shown in Table 2 in Chapter 2. It is repeated below:

Table 2

**THE NORMADALE COMPANY**  
Computation of Required Production  
For the Year Ending December 31, 1940

	Products		
	A	B	C
Quantity required to meet sales estimates (Table 1)	79,700	108,150	12,000
Desired inventory, December 31, 1940.....	17,500	28,000	3,500
Total.....	97,200	136,150	15,500
Less inventory, December 31, 1939.....	16,000	25,000	1,500
Required production.....	<u>81,200</u>	<u>111,150</u>	<u>14,000</u>

**Planning production during the year.** The next step in the development of the production budget is the distribution of the total required production over the budget period on some basis determined after due consideration of the

several and somewhat diverse objectives of production management. It is important to time the production in such a manner as always to have sufficient inventories to meet the sales requirements; it is also important to manufacture the required quantity of satisfactory product as economically as possible. These two objectives may conflict because economical operation is, to some extent at least, dependent on maintaining the lowest possible inventories so as to minimize the financial burden of carrying charges and the losses that result from obsolescence when changes are made in the product.

The balancing of these primary objectives involves careful consideration of a number of more or less interrelated factors, among which may be mentioned the following:

- (1) Length of the production period.
- (2) Desirability of an even flow of production.
- (3) Control of inventories.
- (4) Adequacy of manufacturing equipment.
- (5) Availability of raw materials.
- (6) Availability of labor supply.

As operating problems these matters are purely the concern of the production manager. But because he must give them consideration in planning the production budget by quarters and months, they are briefly discussed here.

**Length of the production period.** If a short period elapses between the starting of an order in the shop and the delivery of the finished product to the storeroom, mistakes in long-range planning of production are relatively unimportant because production can be increased to provide quickly for unexpected requirements. If, however, the production period runs into several weeks or months, so that an increased supply of finished goods can not quickly be made available, this lag must be taken into consideration in scheduling production over the budget period. The greater the lag the more inflexible the production program will be, and the more difficult it will be to maintain an even

flow of production in the face of an uneven sales budget and unforeseen differences between the sales budget and performance.

**Desirability of an even flow of production.** An even flow of production does not necessarily mean that the same quantity of goods will be produced during each week or month of the year, although such a program is theoretically ideal. But it does at least imply the even gradation of the progress of production between the high and low points thereof, and the smallest possible spread between these two extremes. The attainment of this objective eliminates, or at least minimizes, the difficulties which arise from extreme fluctuations in the quantities of materials handled. It results also in a greater stabilization of employment, thus reducing the labor turnover to the mutual advantage of employees and management.

**Control of inventories.** Sales deliveries are often seasonal, with requirements concentrated in certain periods. The production manager, when planning the apportionment of production over the year, must also have in mind the inventories which will be required at different times to meet the varying sales requirements. In doing so he may often be confronted by the conflicting objectives of:

- (1) Maintaining an even flow of production, while
- (2) Providing sufficient inventory quantities to meet the sales requirements promptly, and
- (3) Avoiding the accumulation of excessive inventories, with consequent carrying costs, during periods of small sales requirements.

It is one of the major functions of the production budget to face these inventory problems in advance, and the control of inventories may at times be the deciding factor in the determination of the amounts of production to be scheduled during different periods of the year.

If the products of a manufacturer can be sold in such a way that deliveries will be made only as the products called

for in the sales orders are manufactured, there is no need to maintain inventories of finished goods. In general, however, inventories cease to be a factor in planning production only when the product is manufactured to special order.

**Adequacy of manufacturing facilities.** The manufacturing facilities must be sufficient not merely to provide for production on an even-flow basis, but also to meet the necessities of any indicated peak loads. If the equipment appears to be inadequate, management must consider the feasibility of arranging for the necessary additions, always bearing in mind the time which must elapse before the additions can be made available and the possibility of financing the necessary investment.

The advantages of an even flow of production in minimizing the investment in plant facilities required only during peak load periods is obvious, and should be borne in mind by the production manager in scheduling the total production over the year.

Plant expansion may be contemplated with an eye not only to present needs but to future possibilities. A well-thought-out budget will be of assistance to the management in deciding whether additional facilities can probably be sufficiently utilized to justify the increased fixed charges, or whether such additional facilities will merely result in increased unit costs of production.

**Availability of raw material.** Although the production manager should always know whether a sufficient supply of materials will be available at a reasonable price, as needed, and whether storage facilities are available to house required quantities, these matters are of especial importance in connection with the production budget of a new enterprise or of a manufacturer who contemplates the production of a new article or a large increase in sales.

**Availability of labor supply.** If manufacturing operations require skilled labor, both the availability of such labor and the time needed to train workers are factors that must be considered in connection with plans for the manu-

facture of new products or substantial variations in the rate of production.

**The production budget by periods.** The budgeted production by quarters and by months during the first quarter is shown in Table 22.

Table 22

THE NORMADALE COMPANY						
Production Budget						
For the Year Ending December 31, 1940						
Distribution of Required Production to Budget Periods						
	Product A		Product B		Product C	
	Per Cent of Total Produc- tion*	1940 Quantity	Per Cent of Total Produc- tion**	1940 Quantity	Per Cent of Total Produc- tion**	1940 Quantity
First Quarter:						
January.....	8½%	6,766	6.0%	6,669	5.5%	770
February....	8½%	6,767	6.6	7,336	7.7	1,078
March.....	8½%	6,767	7.4	8,225	8.8	1,232
Total.....	25.00%	20,300	20.0%	22,230	22.0%	3,080
Second Quarter	25.00	20,300	25.0	27,787	23.0	3,220
Third Quarter.	25.00	20,300	25.0	27,788	25.0	3,500
Fourth Quarter	25.00	20,300	30.0	33,345	30.0	4,200
Total.....	100.00%	81,200	100.0%	111,150	100.0%	14,000

\* Representing an exactly even flow of production.

\*\* Determined by dividing the production for the corresponding period in 1939 by the total 1939 production.

It would be obviously impracticable to attempt to give effect, in an illustration of this kind, to all of the considerations noted in the text of this chapter as entering into the planning of the production during the year. It has therefore been assumed that The Normadale Company is concerned primarily with the determination of a reasonably even flow of production which will provide for sales requirements and the budgeted closing inventories, without producing excessive or inadequate inventories at any point during the year. The planning department has decided



that the production shall be distributed over the year as follows:

Product A: In equal amounts each month.

Products B and C: In monthly amounts computed by the application, to the 1940 budget total, of per cents representing the distribution of production by months in 1939.

The distribution of the production on this basis is shown in Table 22.

**Special inventory problems.** The production requirements were computed in Table 2 on the basis of the following formula:

$$\begin{array}{l} \text{Budgeted shipments} \\ \text{plus} \\ \text{Desired inventory at end of period} \\ \text{minus} \\ \text{Inventory at beginning of period} \\ \text{equals} \\ \text{Required production.} \end{array}$$

The formula and the method of its application are simple in principle, but the accurate determination of production requirements may involve, according to circumstances, many more details than those introduced into the illustration.

For example, there presumably will be inventories of goods in process at the beginning and end of the period. In the illustration it has been assumed that such inventories did not change during the period. This assumption made it possible to ignore them in the illustrative statements.

The application of the formula may become very complex if the product is one that consists of separately manufactured parts which are assembled into the completed whole.

Under such conditions the inventories may consist of the following:

- (1) Completely finished product.
- (2) Subassemblies of parts.
- (3) Simple parts manufactured.
- (4) Simple parts purchased.
- (5) Work in process—which may include items of the description of (2), (3), and (4), in various stages of completion or assembly.
- (6) Raw materials.

Obviously such a combination of inventories requires some treatment other than that which would apply to an inventory consisting wholly of finished goods. The most effective and accurate procedure would consist of reducing the sales budget and the inventories (other than raw material) to terms of simple parts.



## CHAPTER 5

### THE MATERIALS BUDGET

**Scope and purpose.** The materials budget deals only with the items classified in the accounts as direct or productive materials. The indirect materials used in connection with the manufacturing operations, but not directly entering into the product, are included in the manufacturing expense budget. The budget thus follows the classification of accounts.

The materials budget deals with estimates, stated in quantity only, of the materials which will be required for use in manufacturing during the budget period. The question of material costs does not arise until the purchase budget is prepared in the manner explained in Chapter 6.

**Material quantities.** After the completion of the computation, in the manner described in the preceding chapter, of the quantities of finished goods required to be produced during the budget period, the next step is to estimate the quantity of material which will enter into the production of the finished goods. This step is performed by multiplying the number of units of finished goods required to be produced, by rates representing material quantities per unit of finished product.

**Dependence upon cost accounting.** Any discussion of budgeting an operating program in complete detail almost necessarily assumes the existence of a cost system of some kind as a source of the required data relative to the material quantities per unit of product. Cost data are usually available because cost accounting precedes budgeting in the usual order of the development of instruments of operating control. In the absence of a cost system, however, adequate budgeting would require the building up of records

of unit quantities of material in the same detail that would be required as a basis of a cost system.

Budgeting is concerned more with the accuracy of data than with the accounting system by which it is assembled. If the product is manufactured in lots of varying sizes, well-kept records of the job-order type, showing the actual consumption of material, probably constitute the most reliable source of information as to material quantities required for a unit of product. If the product flows through the factory in a continuous stream, the process method of cost accounting produces accurate results for past operations which may be used in estimating unit material rates. Data developed by either of these methods, adjusted to give effect to any contemplated changes in the factory or in the method of processing, should serve as a satisfactory basis for estimating material quantity requirements.

Under the specification cost system, material costs are predetermined by measuring the quantities of materials required for a unit of finished product. The accuracy of such estimated costs is determined by the amount of adjustment required when physical inventories are taken and the actual material consumption is ascertained.

Standard costs in the sense of serving as a standard of performance, or a "bogey" by which actual costs may be measured, may have any one of a variety of bases. Some writers on cost accounting advocate basing them on ideal operating conditions; others, on operations at a normal rate. Whatever the basis, the analysis of variations between actual costs and the standards presumably affords a means of checking such matters as spoilage.

Costs used for budget purposes must be representative of prospective operating conditions. Although actual costs of past operations may be used to a large extent in establishing the costs to be used for budget purposes, these historic costs must be adjusted to reflect prospective changes. The standard cost in the sense that it represents a "bogey" would be unacceptable for budget purposes, because a

budget must represent an attainable performance, and the estimates used in preparing the budget should lean toward ideal costs only to the extent of eliminating avoidable waste and spoilage.

For budgeting purposes, then, the material rates to be used should represent a standard of performance for the budget period based on conditions likely to exist during that period.

**Material requirements.** With or without reliance on a cost system, the material requirements are determined by measurement of the materials forming a unit of the finished product. Such measurements should include a provision for known waste in cutting the material. The unit quantities of materials used in each item of product can be determined from the bills of material which are customary parts of the records of the production or purchasing departments. If such bills of material make no provision for the replacement of materials spoiled in process, adjustment allowances must be made therefor. The material specifications for a complex unit of product may include a great number of items, but the preparation of the specifications presents no special difficulty. Careful measurements by one trained in the process will insure a reasonable degree of accuracy.

The estimated material quantities are computed by multiplying the number of units of product to be manufactured by the unit material rates. The production budget, as previously explained, shows the quantities of product to be manufactured during the budget period. Since the materials budget (showing material quantities to be used in manufacture) is ultimately to serve as a basis for the purchase budget (showing material quantities to be purchased), the materials budget should be stated in terms of purchasable units. Material units, as used in reference to the materials budget, therefore, may mean not only raw materials to be processed, but parts and subassemblies which are already made up.

**The materials budget illustrated.** The number of units of each material required for the manufacture of one unit of each product is shown in Table 23. The company uses seven different materials in the manufacture of the three products.

Table 23

**THE NORMADALE COMPANY**  
**Estimated Material Rates**  
**For the Year Ending December 31, 1940**

<u>Materials</u>	<u>Product A</u>	<u>Product B</u>	<u>Product C</u>
R.....	1.78	1.85	1.63
S.....	.08	.08	.08
T.....		5.00	7.50
V.....	2.00	2.50	3.00
X.....			12.84
Y.....	16.30	18.50	12.65
Z.....	3.50	5.00	6.25

The total material requirements are computed by multiplying the quantities of product to be manufactured (as shown in Table 22) by the unit material rates shown in Table 23. The results of such computations for all products and for each subdivision of the budget year are shown in Table 24.

**THE NORMDALE COMPANY**  
**Materials Budget**  
**For the Year Ending December 31, 1940**

Unit Mate- rial Rates (Table 23)	First Quarter				Total	Second Quarter	Third Quarter	Fourth Quarter	Total
	January	February	March						
Product A: Units (Table 22)									
Material:	6,766	6,767	6,767		20,300	20,300	20,300	20,300	81,200
R.....	12,044	12,045	12,045		36,134	36,134	36,134	36,134	144,536
S.....	541	541	542		1,624	1,624	1,624	1,624	6,496
T.....	13,533	13,533	13,534		40,600	40,600	40,600	40,600	162,400
V.....	110,286	110,302	110,302		330,890	330,890	330,890	330,890	1,323,560
Y.....	23,681	23,684	23,685		71,050	71,050	71,050	71,050	284,200
Z.....	160,085	160,105	160,108		480,298	480,298	480,298	480,298	1,921,192
Total.....					22,230	27,787	27,788	33,345	111,150
Product B: Units (Table 22)									
Material:	6,669	7,336	8,225		41,126	51,406	51,408	61,688	205,628
R.....	12,338	13,572	15,216		1,778	2,223	2,223	2,668	8,892
S.....	533	587	658		1,778	2,223	2,223	2,668	8,892
T.....	33,345	36,680	41,125		111,150	138,935	138,940	166,725	555,750
V.....	16,673	18,340	20,562		55,575	69,468	69,470	83,362	277,875
Y.....	123,377	135,716	152,162		411,255	514,060	514,078	616,882	2,056,275
Z.....	33,345	36,680	41,125		111,150	138,935	138,940	166,725	555,750
Total.....	219,611	241,575	270,848		732,034	915,027	915,059	1,098,050	3,660,170
Product C: Units (Table 22)									
Material:	770	1,078	1,232		3,080	3,220	3,500	4,200	14,000
R.....	1,255	1,757	2,008		5,020	5,249	5,705	6,846	22,820
S.....	62	86	98		246	258	280	336	1,120
T.....	5,775	8,085	9,240		23,100	24,150	26,250	31,500	105,000
V.....	2,310	3,234	3,696		9,240	9,680	10,500	12,600	42,000
Y.....	9,887	13,841	15,819		39,547	41,345	44,940	53,928	179,760
Z.....	9,740	13,637	15,585		38,962	40,733	44,275	53,130	177,100
Total.....	4,813	6,737	7,700		19,250	20,125	21,875	26,250	87,500
Total.....	33,842	47,377	54,146		135,365	141,520	153,825	184,590	615,300
All Products: Material:									
R.....	25,637	27,374	29,269		82,280	92,789	93,247	104,668	372,984
S.....	1,136	1,214	1,298		3,648	4,105	4,127	4,628	16,508
T.....	39,120	44,765	50,365		134,250	163,085	165,190	198,225	660,750
V.....	32,516	35,107	37,792		105,415	119,728	120,570	136,562	482,275
Y.....	9,887	13,841	15,819		39,547	41,345	44,940	53,928	179,760
Z.....	243,403	269,655	278,049		781,107	885,683	889,243	1,000,902	3,556,985
Total.....	61,839	67,101	72,510		201,450	230,110	231,865	264,025	927,450
Total.....	413,538	449,057	485,102		1,347,697	1,536,845	1,549,182	1,762,938	6,196,662





## CHAPTER 6

### THE PURCHASE BUDGET

**Computation of purchase requirements.** After the quantity of each material required for the production program has been determined in the manner outlined in Chapter 5, the next step is to estimate the quantity which it will be necessary to purchase. The quantity to be purchased will depend upon the material requirements (Table 24) for the production program and the quantities which, in the judgment of the management, should be in the inventory at the end of the year. The following table shows the total budgeted quantity of Material R, as thus determined, to be purchased by The Normadale Company during 1940:

Table 25

**THE NORMADALE COMPANY**  
**Computation of Purchase Requirements For Material R**  
**For the Year Ending December 31, 1940**

Quantity required for production (Table 24) . .	372,984
Desired inventory, December 31, 1940 . . . . .	<u>75,000</u>
Total requirements. . . . .	447,984
Less inventory, December 31, 1939 . . . . .	<u>80,000</u>
Purchase requirements . . . . .	<u>367,984</u>

Before budgeting the quantities to be purchased during each month and quarter of the year, consideration should be given to the following matters:

The relation of purchases to receipts in any month or quarter.

Maximum and minimum inventory limits during the year.

**Purchases and receipts.** The materials purchase budget is concerned with the receipt of materials rather than with

the actual purchase thereof. To some extent generally, and in many cases to a very great extent, purchases are made in advance of deliveries. In some lines of business the contracting in advance for large quantities of material is customary and even necessary to assure a supply of the materials, or to take advantage of special price opportunities, or to hedge against price advances. A frequent cause of purchasing in advance of deliveries, is the unavoidable time between the order and the delivery of the material.

Purchasing in advance does not necessarily involve acceptance of immediate delivery. Delivery may be scheduled to order. The control of inventories and the coordination of purchasing with production, therefore, is a matter of scheduling the receipt of materials rather than of scheduling the purchases thereof. The matter of the allocation of purchases to months and quarters during the year must therefore be recognized as one of planning the receipt of materials.

**Maximum and minimum inventories.** Although the desired inventory at the end of the budget year should be fixed definitely, considerable latitude will be allowed relative to inventories during the year to permit the exercise of judgment as to quantities to be purchased during each month. However, for purposes of a control over the inventories, it is desirable to establish minimum and maximum limits of the amount of each material normally to be carried. The lower limit is the smallest stock which may be carried without risk of production delays resulting from lack of material. The availability of material, the distance from the source of supply, and the transportation facilities are determining factors in setting this margin of safety, because, if supplies can be obtained quickly and on short notice, the inventory can safely be less than otherwise. The maximum limit may be fixed with reference to minimizing the capital investment and the storeroom facilities, and such other factors as possible fluctuations in prices and depreciation and obsolescence of materials.

**Maximum, minimum, and budgeted receipts.** The production requirements and the maximum and minimum inventory limits determine the maximum and minimum material receipts during each period of the budget year. The method of making the computation is indicated below:

- (1) Maximum ending inventory *plus* production requirements *minus* opening inventory *equals* maximum limit of receipts.
- (2) Minimum ending inventory *plus* production requirements *minus* opening inventory *equals* minimum limit of receipts.

The application of this procedure is illustrated by the following computation of the limits of The Normadale Company's receipts of Material R for the month of January.

Table 26

**THE NORMADALE COMPANY**  
**Computation of Maximum and Minimum Limits**  
**Of Receipts of Material R for the Month of January (in Units)**

	For Minimum Inventory	For Maximum Inventory
January production requirements . . . . .	25,637	25,637
January 31st inventory limits . . . . .	<u>60,000</u>	<u>100,000</u>
Total . . . . .	85,637	125,637
Inventory, December 31, 1939 . . . . .	<u>80,000</u>	<u>80,000</u>
Limits of receipts for January . . . . .	<u><u>5,637</u></u>	<u><u>45,637</u></u>

The determination of the quantity to be received between the minimum and maximum limits may be influenced by consideration of the relative prices of small and large quantities, the relative unit transportation costs on small and large quantities, and the most desirable point at which to maintain the inventory.

**Material prices.** The unit cost of the materials to be purchased should be estimated by the purchasing department. Some prices may be covered by existing contracts. Where no price guarantee is in effect, the purchasing department will prepare estimates on the basis of information

as to current market conditions and an appraisal of trends in prices.

**The purchase budget illustrated.** Table 24 shows The Normadale Company's material requirements for production, by months and quarters, during the budget year. The following table shows, as to each material, the inventory at the beginning of the year, the desired inventory at the end of the year, the maximum and minimum limits that are to govern the inventories at month-ends during the year, and the estimated unit purchase prices.

Table 27

**THE NORMADALE COMPANY**  
Schedule of Data to be Used in Budgeting Purchases

Materials	Inventory Quantities		Inventory Limits		Estimated Unit Price
	December 31, 1939	Required December 31, 1940	Maximum	Minimum	
R.....	80,000	75,000	100,000	60,000	\$1.00
S.....	2,500	3,500	5,000	2,000	5.00
T.....	100,000	150,000	200,000	100,000	.50
V.....	90,000	75,000	90,000	60,000	.20
X.....	10,000	30,000	40,000	10,000	.75
Y.....	400,000	500,000	850,000	300,000	.10
Z.....	150,000	175,000	250,000	125,000	.20

The complete purchase budget prepared on the basis of this information is shown in Tables 28 and 29. Table 28 shows the minimum and maximum monthly or quarterly purchases, and the selected or budgeted amounts. In determining these budgeted amounts, it was assumed that The Normadale Company was confronted by no special conditions which would interfere with a fairly uniform rate of purchases throughout the year; and the allocation of quantities to the budget periods was made with general reference to the production requirements and the accumulation of the desired end-of-year inventories. Table 29 summarizes from Table 28 the dollar amounts of purchases of all materials by budget periods.

## THE NORMADALE COMPANY

## Purchase Budget

For the Year Ending December 31, 1940

	Required for Production (Table 24)		Production Plus Inventory Units (Table 27)		Beginning Inventory	Purchases		Selected	Cost at Unit Price (Table 27)
	Minimum	Maximum	Minimum	Maximum		Minimum	Maximum		
<b>Material R:</b>			60,000	100,000					\$ 1.00
First quarter:									
January.....	25,637	85,637	125,637		80,000	5,637	45,637	23,637	\$23,637
February.....	27,374	87,374	127,374		78,000	9,374	49,374	25,374	25,374
March.....	29,269	89,269	129,269		76,000	13,269	53,269	27,269	27,269
Total.....	82,280	142,280	182,280		80,000	62,280	102,280	76,280	\$ 76,280
Second quarter.....	92,789	152,789	192,789		74,000	78,789	118,789	92,789	92,789
Third quarter.....	93,247	153,247	193,247		74,000	79,247	119,247	93,247	93,247
Fourth quarter.....	104,668	164,668	204,668		74,000	90,668	130,668	105,668	105,668
Total.....	372,984	432,984	472,984		80,000	352,984	392,984	367,984	\$367,984
<b>Material S:</b>			2,000	5,000					\$ 5.00
First quarter:									
January.....	1,136	3,136	6,136		2,500	636	3,636	1,186	\$ 5,930
February.....	1,214	3,214	6,214		2,550	664	3,664	1,314	6,570
March.....	1,298	3,298	6,298		2,650	648	3,648	1,398	6,990
Total.....	3,648	5,648	8,648		2,500	3,148	6,148	3,898	\$ 19,490
Second quarter.....	4,105	6,105	9,105		2,750	3,355	6,355	4,355	21,775
Third quarter.....	4,127	6,127	9,127		3,000	3,127	6,127	4,377	21,885
Fourth quarter.....	4,628	6,628	9,628		3,250	3,378	6,378	4,878	24,390
Total.....	16,508	18,508	21,508		2,500	16,008	19,008	17,508	\$ 87,540

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Table 28—Continued

**THE NORMADALE COMPANY**  
Purchase Budget  
For the Year Ending December 31, 1940

	Required for Production (Table 24)	Production Plus Inventory Units (Table 27)		Beginning Inventory	Purchases		Cost at Unit Price (Table 27)
		Minimum	Maximum		Minimum	Maximum	
<b>Material T:</b>							
First quarter:							
January.....	39,120	139,120	239,120	100,000	39,120	139,120	\$ 29,560
February.....	44,765	144,765	244,765	120,000	24,765	124,765	22,383
March.....	50,365	150,365	250,365	120,000	30,365	130,365	25,182
Total.....	134,250	234,250	334,250	100,000	134,250	234,250	\$ 77,125
Second quarter.....	163,085	263,085	363,085	120,000	143,085	243,085	86,543
Third quarter.....	165,190	265,190	365,190	130,000	135,190	235,190	87,595
Fourth quarter.....	198,225	298,225	398,225	140,000	158,225	258,225	104,112
Total.....	660,750	760,750	860,750	100,000	660,750	760,750	\$355,375
							\$ .20
<b>Material V:</b>							
First quarter:							
January.....	32,516	92,516	122,516	90,000	2,516	32,516	\$ 5,503
February.....	35,107	95,107	125,107	85,000	10,107	40,107	7,022
March.....	37,792	97,792	127,792	85,000	12,792	42,792	6,958
Total.....	105,415	165,415	195,415	90,000	75,415	105,415	\$ 19,483
Second quarter.....	119,728	179,728	209,728	82,000	97,728	127,728	23,346
Third quarter.....	120,570	180,570	210,570	79,000	101,570	131,570	23,714
Fourth quarter.....	136,562	196,562	226,562	77,000	119,562	149,562	26,912
Total.....	482,275	542,275	572,275	90,000	452,275	482,275	\$ 93,455

(Continued on next page)

Table 28—Continued

## THE NORMADALE COMPANY

## Purchase Budget

For the Year Ending December 31, 1940

	Required for Production (Table 24)		Inventory Plus Inventory Units (Table 27)		Beginning Inventory	Purchases		Cost at Unit Price (Table 27)
	Minimum	Maximum	Minimum	Maximum		Minimum	Maximum	
<b>Material X:</b>			10,000	40,000				\$ .75
First quarter:								
January .....	9,887	49,887	19,887	59,887	10,000	9,887	39,887	\$ 11,165
February .....	13,841	53,841	23,841	63,841	15,000	8,841	38,841	10,381
March .....	15,819	55,819	25,819	65,819	15,000	10,819	40,819	13,739
Total .....	39,547	79,547	49,547	79,547	10,000	39,547	69,547	\$ 35,285
Second quarter .....	41,345	81,345	51,345	91,345	17,500	33,845	63,845	32,884
Third quarter .....	44,940	84,940	54,940	94,940	20,000	34,940	64,940	37,455
Fourth quarter .....	53,928	93,928	63,928	103,928	25,000	38,928	68,928	44,196
Total .....	179,760	319,760	189,760	319,760	10,000	179,760	209,760	\$149,820
<b>Material Y:</b>			300,000	850,000				\$ .10
First quarter:								
January .....	243,403	1,093,403	543,403	1,593,403	400,000	143,403	693,403	\$ 24,840
February .....	259,655	1,109,655	559,655	1,609,655	405,000	154,655	704,655	26,966
March .....	278,049	1,128,049	578,049	1,628,049	415,000	163,049	713,049	28,805
Total .....	781,107	1,631,107	1,081,107	1,631,107	400,000	681,107	1,231,107	\$ 80,611
Second quarter .....	885,683	1,735,683	1,185,683	1,735,683	425,000	760,683	1,310,683	91,068
Third quarter .....	889,243	1,739,243	1,189,243	1,739,243	450,000	739,243	1,289,243	91,424
Fourth quarter .....	1,000,902	1,850,902	1,300,902	1,850,902	475,000	825,902	1,375,902	102,590
Total .....	3,556,935	4,406,935	3,856,935	4,406,935	400,000	3,456,935	4,006,935	\$365,693

{Continued on next page}



## THE NORMADALE COMPANY

## Purchase Budget

For the Year Ending December 31, 1940

	Required for Production (Table 24)		Production Plus Inventory Units (Table 27)		Beginning Inventory	Purchases		Cost at Unit Price (Table 27)
	Minimum	Maximum	Minimum	Maximum		Minimum	Maximum	
<b>Material Z:</b>			125,000	250,000				\$ .20
First quarter:								
January.....	61,839	311,839	186,839	311,839	150,000	36,839	161,839	\$ 12,768
February.....	67,101	317,101	192,101	317,101	152,000	40,101	165,101	13,620
March.....	72,510	322,510	197,510	322,510	153,000	44,510	169,510	14,902
Total.....	201,450	451,450	326,450	451,450	150,000	176,450	301,450	\$ 41,290
Second quarter.....	230,110	480,110	355,110	480,110	155,000	200,110	325,110	47,022
Third quarter.....	231,865	481,865	356,865	481,865	160,000	196,865	321,865	47,373
Fourth quarter.....	264,025	514,025	389,025	514,025	165,000	224,025	349,025	54,805
Total.....	927,450	1,777,450	1,052,450	1,777,450	150,000	902,450	1,027,450	\$190,490

Table 29

**THE NORMADALE COMPANY**  
**Summary of Material Purchases**  
**For the Year Ending December 31, 1940**

Material	First Quarter				Second Quarter	Third Quarter	Fourth Quarter	Total
	January	February	March	Total				
R.....	\$ 23,637	\$ 25,374	\$ 27,269	\$ 76,280	\$ 92,789	\$ 93,247	\$105,668	\$ 367,984
S.....	5,980	6,570	6,990	19,490	21,775	21,885	24,390	87,540
T.....	29,560	22,383	25,182	77,125	86,543	87,595	104,112	355,375
V.....	5,503	7,022	6,958	19,483	23,346	23,714	26,912	93,455
X.....	11,165	10,381	13,739	35,285	32,884	37,455	44,196	149,820
Y.....	24,840	26,966	28,805	80,611	91,068	91,424	102,590	365,693
Z.....	12,768	13,620	14,902	41,290	47,022	47,373	54,805	190,490
Total.....	\$113,403	\$112,316	\$123,845	\$349,564	\$395,427	\$402,693	\$462,673	\$1,610,357

Note. Amounts taken from Table 28.



## CHAPTER 7

### THE LABOR BUDGET

**Scope and purpose.** The labor budget deals only with items classified in the accounts as direct labor; indirect labor is included in the manufacturing expense budget.

The labor budget indicates the expected cost of the direct labor which will be required for the manufacture of products in the quantities shown by the production budget. These estimated costs are computed by multiplying the number of units of finished goods required to be produced, by rates representing labor costs per unit of finished product.

**Labor rates.** The predetermination of unit labor costs may be a relatively simple or a more or less complicated process, depending upon the cost system in use and the method of compensating labor. The preceding chapter contained a brief discussion of the relation of cost accounting systems to budgeting procedure; some of the methods of determining the compensation of labor are mentioned and discussed below:

- (1) Day-rate system.
- (2) Piece-rate system.
- (3) Bonus system.

Under the day-rate system each workman is paid a predetermined sum for a day's work. A certain number of hours usually constitute a standard day, and the day-rate system is, therefore, in effect an hour-rate system. The production reports of the factory should show the number of units produced during a day or hour, and the labor reports should show the labor cost of such production; a per-unit labor cost is, therefore, readily determinable.

The piece-rate system bases the amount of the wage upon the quantity produced, on the theory that the workman should be paid according to the actual amount of work he turns out rather than on the basis of the number of hours he spends at the work.

The bonus system of wage payment is generally a combination of the day-rate and the piece-rate systems. Each workman is paid a day rate for producing a specified minimum quantity. For all production in excess of this specified quantity he receives additional compensation in the form of a bonus, which is usually computed at a piece rate. The bonus system may be operated on a group basis, the bonus being determined by the quantity produced by an organized group of workmen in excess of a required minimum. If a bonus system of any type is in use, the problem of determining unit labor costs is somewhat complicated. Experience tables must be relied upon to show what the average cost per unit of production has been for each class of labor.

From the foregoing it is apparent that the piece-rate system is ideal for budgeting the direct labor costs. If other methods of payment are in use, it becomes necessary, with the available data relative to the quantity of past production and the labor cost thereof, to establish a ratio between production and compensation which may be applied as an acceptable piece rate.

**Spoiled work and waste.** Suppose that an order for 1,000 pieces is started through the factory and at the end of the tenth and final operation 700 acceptable pieces are delivered. During the course of the ten operations there has been a loss of the material for 300 pieces and the accumulated labor thereon.

Under the job-order type of cost accounting these losses are automatically reflected in the unit labor rates, because these rates are computed by dividing the total labor cost by the number of acceptable units produced. An analysis of the labor cost, by operations, might appear as follows:

Table 30

## Summary of Piece Rates

Operation Number	Quantity Completed	Piece Rate	Labor Cost Paid
1.....	1,000	\$.0010	\$ 1.00
2.....	990	.0800	79.20
3.....	975	.0070	6.83
4.....	900	.0054	4.86
5.....	875	.0135	11.81
6.....	825	.0291	24.01
7.....	750	.0350	26.25
8.....	740	.0038	2.81
9.....	725	.0120	8.70
10.....	700	.0500	35.00
Total.....	<u>700</u>	<u>\$.2368</u>	<u>\$200.47</u>
Average per piece			<u>\$ .2864</u>

The effects of spoilage and waste are not so readily reflected by a specification cost system. For the purpose of determining, for specification cost purposes, the labor costs per unit of product subject to spoilage and waste, the labor piece rates (or equivalents based on other wage rates) must be adjusted to take into consideration the effects of spoilage. This must be done by estimate on the basis of experience. The allowance therefor may be made by addition of a percentage to the computed estimates, or by budgeting it as an item of manufacturing expense.

**The labor budget illustrated.** For budgeting purposes, the labor rates to be used should represent a standard of probable performance for the budget period, based on con-

ditions likely to exist during that period. The Normadale Company has prepared the following table showing the estimated labor costs, during the budget year, per unit of each of the three products:

Table 31

**THE NORMADALE COMPANY**  
**Estimated Labor Rates per Unit of Finished Product**  
**For the Year Ending December 31, 1940**

<u>Product</u>	<u>Labor Rate Per Unit</u>
A.....	\$1.50
B.....	3.25
C.....	5.00

These unit rates were based on ascertained labor costs for 1939, with adjustments for prospective changes in processes and wage rates. The rate for each product was determined by combining the rates for each of the several operations required for the manufacture of the product.

Table 32, on page 63, which was developed from the data in the production budget (Table 22) and the above-stated unit labor rates, shows the estimated expenditures for labor, by months and quarters, during the budget year.

Table 32

**THE NORMADALE COMPANY**  
**Labor Budget**  
**For the Year Ending December 31, 1940**

	Production Budget (Table 22)	Unit Labor Rate (Table 31)	Labor Cost
For product A:			
First quarter:			
January .....	6,766	\$1.50	\$ 10,150
February.....	6,767	1.50	10,150
March.....	6,767	1.50	10,150
Total.....	20,300	\$1.50	\$ 30,450
Second quarter .....	20,300	1.50	30,450
Third quarter .....	20,300	1.50	30,450
Fourth quarter.....	20,300	1.50	30,450
Total .....	81,200	\$1.50	\$121,800
For product B:			
First quarter:			
January.....	6,669	\$3.25	\$ 21,674
February.....	7,336	3.25	23,842
March.....	8,225	3.25	26,731
Total.....	22,230	\$3.25	\$ 72,247
Second quarter .....	27,787	3.25	90,308
Third quarter.....	27,788	3.25	90,311
Fourth quarter.....	33,345	3.25	108,371
Total .....	111,150	\$3.25	\$361,237
For product C:			
First quarter:			
January.....	770	\$5.00	\$ 3,850
February.....	1,078	5.00	5,390
March.....	1,232	5.00	6,160
Total.....	3,080	\$5.00	\$ 15,400
Second quarter.....	3,220	5.00	16,100
Third quarter.....	3,500	5.00	17,500
Fourth quarter.....	4,200	5.00	21,000
Total .....	14,000	\$5.00	\$ 70,000

Summary for All Products	Product			
	A	B	C	Total
First quarter:				
January.....	\$ 10,150	\$ 21,674	\$ 3,850	\$ 35,674
February.....	10,150	23,842	5,390	39,382
March.....	10,150	26,731	6,160	43,041
Total.....	\$ 30,450	\$ 72,247	\$15,400	\$118,097
Second quarter.....	30,450	90,308	16,100	136,858
Third quarter.....	30,450	90,311	17,500	138,261
Fourth quarter.....	30,450	108,371	21,000	159,821
Total.....	\$121,800	\$361,237	\$70,000	\$553,037





## CHAPTER 8

### THE MANUFACTURING EXPENSE BUDGET

**Expense classification in budgets and accounts.** One of the major advantages of a budget lies in the benefits which may result from the comparison of the budget estimates and the actual results. If expense budgets are adequately to serve their purpose as a means of administrative control over expenses, the budgeting and the accounting must be on the same basis so as to facilitate the making of comparisons.

This does not mean that when a budget procedure is introduced, the classification of expenses in the budget must necessarily follow the classification already established in the accounts. It is quite possible that the introduction of the budget procedure may result in changes in the accounting classifications to the end that the budget may be more effective.

Expenses are commonly classified for periodical statement purposes in the following groups: manufacturing, selling or distribution, general or administrative, and financial. This classification is also commonly recognized for budget purposes, and a budget is customarily prepared for each of these groups.

For general accounting purposes the decision as to the individual expense accounts to be kept is usually made with the thought in mind of ascertaining the total expenditures according to their purpose or nature, such as salaries, supplies, depreciation, and the like.

From the standpoint of maximum usefulness in a budget program, the account classification on the basis of purpose or nature should be subdivided on the basis of the responsi-

bility of individuals. To a certain extent this is accomplished by the departmental or functional classification indicated by such account titles as Pay Roll—Factory Superintendent and Foremen, Pay Roll—Direct Labor, and Pay Roll—Shop. But a subdivision on so broad a basis will not usually serve the purpose of fixing the responsibility for excess expenditures disclosed by a comparison of the budget and the actual results. The subdivision of expense accounts on the responsibility basis should be so fine that expenditures controlled by more than one person would never be charged to the same account unless those individuals were jointly responsible.

Since budgeting of expenses, as an instrument of control, is concerned primarily with the classification of expenses in terms of individual responsibility, it follows that a distinction should be made in the budget and in the accounts between controllable and uncontrollable expenses. There are numerous items which are properly included in the total expenses of a department, but the amount of which can not be controlled by the head of the department or any of his subordinates. These obviously should be separated in the budget and the accounts from the expenses which are subject to control.

Finally, the estimating of expenses for budget purposes will be facilitated if, to such an extent as the conditions may permit, a distinction is made in the accounts between fixed and variable expenses. Fixed expenses are those which remain the same, or substantially so, regardless of normal variations in sales or production. Variable expenses are those which may be expected to increase or decrease proportionately with the changes in the volume of sales or production. Between these two extremes lie those expenses which combine these characteristics in varying proportions. From the standpoint of facilitating the estimating of expenses for budget purposes, it is unfortunate that so few expenses are susceptible of definite classification in either of these two categories.

**Estimating expenses.** So far as possible, the expense budgets should be prepared by the persons responsible for authorizing the expenditures. Each person who is to prepare an expense budget or any portion thereof should be furnished with data relative to the expenses of prior periods and any plans for the budget period which may affect the amounts of the expenses. With such data in hand he should decide:

- (1) Which, if any, of the present expenses can be eliminated.
- (2) The probable effect of the sales and production forecasts on those which must be incurred.

Although the analysis of prior years' expenditures should be directed, to a certain extent, toward the determination of the possibilities of elimination or reduction of expenses, no estimates involving the elimination of expenses should be made unless it is reasonably certain that plans to make the revised estimates effective can be enforced. This applies also to fixing the budget allowances for necessary items at amounts lower than the actual expenditures in prior years.

**Allocation of expenses to periods.** The distribution of the estimated expenses over the budget year, like the estimating of the total expense for the year, is a process in which each class of expense must be dealt with individually. To a considerable extent the distribution will be determined by considerations which affected the estimate of the total. For instance, fixed expenses will be distributed evenly or on the basis of the different levels thereof during seasons. The variable expense distributions will follow the variations in the base to which such expenses bear a relation. Expenses taken up by credits to prepaid or accrued expense accounts will be apportioned on the accrual basis rather than on the basis of the dates of payment.

**Budgets of service departments.** Before the expense budgets of the operating departments can be prepared, it is

necessary to estimate the expenses of all service departments. The expenses of such departments are recorded in accounts or groups of accounts which are closed out by periodical apportionments to the departments served. The expense budgets of these departments are the first to be prepared because they are the source of items taken up in the other expense budgets.

The building expense budget is an illustration. If the buildings are rented, the service charge will include the rent and other occupancy costs. If the buildings are owned, the service charge will include the carrying and operating costs. In either case the building expenses will be estimated and the budgeted amount thereof will be apportioned to the budgets of the departments benefited.

**Service department budget illustrated.** The Normadale Company owns its building. The costs of occupancy thereof for the budget year are estimated as follows:

Table 33

THE NORMADALE COMPANY	
Building Expense Budget	
For the Year Ending December 31, 1940	
Real estate taxes.....	\$ 40,000.00
Depreciation.....	80,000.00
Insurance.....	12,000.00
Repairs and upkeep.....	64,000.00
Total.....	<u>\$196,000.00</u>

After the total building expenses for the year have been estimated, three other matters remain for consideration:

- (1) The distribution of the total expense as rental charge to the operating departments. It is assumed that this distribution is made as follows:

Manufacturing expenses....	\$180,000.00
Administrative expenses....	16,000.00
Total.....	<u>\$196,000.00</u>

These amounts will be taken up in the manufacturing and administrative expense budgets, as shown in Table 34 and Table 48.

- (2) The apportionment by months and quarters; this is made on an equal monthly basis.
- (3) The determination of the cash requirements, in total and by periods. This matter will be discussed in a subsequent chapter in connection with the preparation of the cash budget.

**Preparation of the manufacturing expense budget.** Each person who is to make estimates of any of the manufacturing expenses should be supplied with all available data relative to such expenses, as well as with a copy of the production budget. Although the general responsibility for the preparation and enforcement of the manufacturing expense budget rests with the manager of production, the immediate responsibility for many of the expenses will rest with the foremen of the several departments. On the general principle of allowing those directly responsible for performance to take an active part in the preparation of the budgets, the foremen will be encouraged to originate the estimates of the expenses which are controllable by them. Certain other expenses which are outside the jurisdiction of the individual foremen may be responsive to control by the production manager.

The co-operation of the cost accountant will be required in supplying data for estimates, checking the estimates and consolidating them as a complete budget.

Some special considerations with respect to estimating certain typical manufacturing expenses are noted in the following comments.

**Indirect labor.** The indirect labor cost for the period preceding the budget period should be analyzed, the requirements for additional help or the possibility of elimi-

nating some of the help should be considered, and consideration should be given to plans for increasing or decreasing any of the rates of compensation.

The aggregate estimated indirect labor cost should be determined from detailed schedules showing the nature of each job and the amount to be paid therefor. Sometimes the names of the individual employees are shown, but this is not always practicable, particularly in large organizations or in situations in which there is a large employment turnover. The indirect labor budget should be prepared in sufficient detail to permit the subsequent localizing, to the greatest practicable extent, of the variations between the estimates and the actual results.

**Indirect material.** Under this classification are grouped all materials which are chargeable against production costs, but which are not included in the materials budget.

The accounts should be analyzed to determine the amount of each material consumed during the preceding periods. Such data, together with the production budget showing the proposed volume for the budget period, serve as the basis for estimating the quantities of the indirect material requirements. The probable cost of such requirements, estimated by the purchasing department, is the amount to be shown in the manufacturing expense budget. The total shown in this budget should be supported by a schedule showing individual items so that, for purposes of control, statements can be prepared comparing the budget estimates with the actual amounts.

The material requirements as determined above will not necessarily be the same as the purchases during the period; the purchases will be estimated after giving consideration to the opening and the proposed closing inventories. The scheduling of the purchases of indirect materials by months and quarters will be determined by considerations similar to those discussed in connection with the budgeting of purchases of direct materials.

**Repairs and maintenance.** Experience data relative to the cost of repairs and maintenance, supplemented by a report on the condition of the equipment in use, will be the best guides in making the budget estimate of these expenses. If any additional equipment is to be installed during the period, recognition must be given to the prospect of additional repair and maintenance charges.

**Power, heat, and light.** If purchased electric power is used, the power cost varies almost in direct ratio to the production volume. The budget estimate will be based on an analysis of prior periods' costs, allowance being made for the requirements of any additional equipment and for any variation in the number of hours each machine must be operated to meet the requirements of the production budget.

If the business operates its own power plant, that plant may supply heat and light. In such cases the costs of the plant may be budgeted as those of a service department and distributed on some equitable basis to the budgets of the departments served. If heat and light are not furnished by the power plant, the separate estimates thereof will take into consideration any expected changes in factory space and layout or in working hours.

**Rent.** The treatment of rent, whether paid as such or as expenses applicable to owned premises, was indicated by the discussion of the building expense budget illustrated in Table 33.

**Depreciation.** The charges for depreciation of equipment can be estimated with considerable accuracy by applying the customary depreciation rates to the cost of equipment in service or to be acquired and put in operation during the period.

**Insurance.** The insurance expense for the budget period is estimated on the basis of the insurance in force chargeable to production, plus or minus adjustments for contemplated changes in equipment or inventories or in the coverage of



other hazards incident to manufacturing, such as compensation insurance.

**Factory office expenses.** An analysis of these expenses for prior periods, with due allowance for changes in production or record-keeping policies which might affect the office routine, determines the amount for which allowance should be made in the budget.

**The manufacturing expense budget illustrated.** The budget of manufacturing expenses of The Normadale Company, shown in Table 34, is assumed to have been developed in accordance with the procedure discussed in this chapter. The detailed supporting schedules showing the computation of the amounts of the several elements of expense are not illustrated.

The expenses for 1939, the analysis of which formed the basis of the estimates for 1940, are shown in the first column of the table. The estimated expenses for the year are apportioned by months and quarters. The methods of determining the cash requirements for manufacturing expenses will be discussed in a subsequent chapter dealing with the cash budget.

**THE NORMADALE COMPANY**  
**Manufacturing Expense Budget**  
**For the Year Ending December 31, 1940**

Table 34

Item	Actual 1939	Estimated 1940							
		Total	January	February	March	Total	Second Quarter	Third Quarter	Fourth Quarter
Indirect labor.....	\$ 65,000	\$ 70,000	\$ 4,816	\$ 5,152	\$ 5,502	\$ 15,470	\$ 17,409	\$ 17,500	\$ 19,621
Indirect material.....	70,000	75,000	5,160	5,520	5,895	16,575	18,653	18,750	21,022
Repairs and maintenance.....	52,000	60,000	4,128	4,416	4,716	13,260	14,922	15,000	16,818
Power.....	35,000	42,000	2,890	3,091	3,301	9,282	10,445	10,500	11,773
Heat.....	15,000	16,500	2,475	2,475	1,650	6,600	3,300	1,650	4,950
Light.....	5,000	5,500	825	550	550	1,925	825	825	1,925
Rent.....	180,000	180,000	15,000	15,000	15,000	45,000	45,000	45,000	45,000
Depreciation.....	200,000	240,000	20,000	20,000	20,000	60,000	60,000	60,000	60,000
Insurance.....	20,000	22,000	1,833	1,833	1,834	5,500	5,500	5,500	5,500
Factory office expense.....	18,000	18,000	1,500	1,500	1,500	4,500	4,500	4,500	4,500
Total.....	\$660,000	\$729,000	\$58,627	\$59,537	\$59,948	\$178,112	\$180,554	\$179,225	\$191,109



## CHAPTER 9

### STATEMENT OF ESTIMATED COST OF GOODS SOLD

**Purpose of statement of estimated cost of goods sold.** The budgets for material purchases, labor, and manufacturing expense were discussed in preceding chapters; data contained therein, together with estimated inventories, can now be assembled in a statement showing the budgeted cost of goods manufactured and sold. Such a statement will be used in preparing a statement of estimated profit and loss, to be discussed in a later chapter.

**Materials.** The computation of the materials required for production was illustrated in Table 24. The prices at which these materials are expected to be purchased are shown in Table 27. To determine the cost of materials used, it is necessary to know also the amounts of the material inventories at the beginning and end of each budget period, as computed in Table 35. It is assumed that the prices of materials in the inventory at the beginning of the budget period are the same as those estimated for the budget period.

Table 35

**THE NORMADALE COMPANY**  
**Computation of Material Inventories**  
**For the Year Ending December 31, 1940**

	Inventory Quantity (Table 28)	Unit Price (Table 27)	Inventory Cost
<b>Material R:</b>			
December 31, 1939.....	80,000	\$1.00	\$80,000
January 31, 1940.....	78,000	1.00	78,000
February 29, 1940.....	76,000	1.00	76,000
March 31, 1940.....	74,000	1.00	74,000
June 30, 1940.....	74,000	1.00	74,000
September 30, 1940.....	74,000	1.00	74,000
December 31, 1940 (Table 27)....	75,000	1.00	75,000
<b>Material S:</b>			
December 31, 1939.....	2,500	\$5.00	\$12,500
January 31, 1940.....	2,550	5.00	12,750
February 29, 1940.....	2,650	5.00	13,250
March 31, 1940.....	2,750	5.00	13,750
June 30, 1940.....	3,000	5.00	15,000
September 30, 1940.....	3,250	5.00	16,250
December 31, 1940 (Table 27)....	3,500	5.00	17,500
<b>Material T:</b>			
December 31, 1939.....	100,000	\$ .50	\$50,000
January 31, 1940.....	120,000	.50	60,000
February 29, 1940.....	120,000	.50	60,000
March 31, 1940.....	120,000	.50	60,000
June 30, 1940.....	130,000	.50	65,000
September 30, 1940.....	140,000	.50	70,000
December 31, 1940 (Table 27)....	150,000	.50	75,000
<b>Material V:</b>			
December 31, 1939.....	90,000	\$ .20	\$18,000
January 31, 1940.....	85,000	.20	17,000
February 29, 1940.....	85,000	.20	17,000
March 31, 1940.....	82,000	.20	16,400
June 30, 1940.....	79,000	.20	15,800
September 30, 1940.....	77,000	.20	15,400
December 31, 1940 (Table 27)....	75,000	.20	15,000

(Continued on next page)

Table 35—Continued

**THE NORMADALE COMPANY**  
**Computation of Material Inventories**  
**For the Year Ending December 31, 1940**

	Inventory Quantity (Table 28)	Unit Price (Table 27)	Inventory Cost
<b>Material X:</b>			
December 31, 1939.....	10,000	\$ .75	\$ 7,500
January 31, 1940.....	15,000	.75	11,250
February 29, 1940.....	15,000	.75	11,250
March 31, 1940.....	17,500	.75	13,125
June 30, 1940.....	20,000	.75	15,000
September 30, 1940.....	25,000	.75	18,750
December 31, 1940 (Table 27)....	30,000	.75	22,500
<b>Material Y:</b>			
December 31, 1939.....	400,000	\$ .10	\$40,000
January 31, 1940.....	405,000	.10	40,500
February 29, 1940.....	415,000	.10	41,500
March 31, 1940.....	425,000	.10	42,500
June 30, 1940.....	450,000	.10	45,000
September 30, 1940.....	475,000	.10	47,500
December 31, 1940 (Table 27)....	500,000	.10	50,000
<b>Material Z:</b>			
December 31, 1939.....	150,000	\$ .20	\$30,000
January 31, 1940.....	152,000	.20	30,400
February 29, 1940.....	153,000	.20	30,600
March 31, 1940.....	155,000	.20	31,000
June 30, 1940.....	160,000	.20	32,000
September 30, 1940.....	165,000	.20	33,000
December 31, 1940 (Table 27)....	175,000	.20	35,000

Table 36 shows, by months and quarters, the computation of the cost of materials to be used by The Normadale Company.

Table 36

**THE NORMDALE COMPANY**  
**Statement of Estimated Cost of Materials Used**  
**For the Year Ending December 31, 1940**

Item	First Quarter			Second Quarter	Third Quarter	Fourth Quarter	Total
	January	February	March				
<b>Beginning inventory (Table 35):</b>							
Material R.....	\$ 80,000	\$ 78,000	\$ 76,000	\$ 80,000	\$ 74,000	\$ 74,000	\$ 80,000
Material S.....	12,500	12,750	13,250	12,500	15,000	16,250	12,500
Material T.....	50,000	60,000	60,000	50,000	65,000	70,000	50,000
Material V.....	18,000	17,000	17,000	18,000	15,800	15,400	18,000
Material X.....	7,500	11,250	11,250	7,500	15,000	18,750	7,500
Material Y.....	40,000	40,500	41,500	40,000	45,000	47,500	40,000
Material Z.....	30,000	30,400	30,600	30,000	32,000	33,000	30,000
Total .. .. .	\$238,000	\$249,900	\$249,600	\$238,000	\$261,800	\$274,900	\$ 238,000
Purchases (Table 29) .. .	113,403	112,316	123,845	349,564	402,693	462,673	1,610,357
Total .. .	\$351,403	\$362,216	\$373,445	\$587,564	\$664,493	\$737,573	\$1,848,357
<b>Less closing inventory (Table 35):</b>							
Material R .. .	\$ 78,000	\$ 76,000	\$ 74,000	\$ 74,000	\$ 74,000	\$ 75,000	\$ 75,000
Material S.....	12,750	13,250	13,750	13,750	16,250	17,500	17,500
Material T.....	60,000	60,000	60,000	60,000	70,000	75,000	75,000
Material V.....	17,000	17,000	16,400	16,400	15,400	15,000	15,000
Material X.....	11,250	11,250	13,125	13,125	18,750	22,500	22,500
Material Y.....	40,500	41,500	42,500	42,500	47,500	50,000	50,000
Material Z.....	30,400	30,600	31,000	31,000	33,000	35,000	35,000
Total .. .	\$249,900	\$249,600	\$250,775	\$250,775	\$274,900	\$290,000	\$ 290,000
Materials used .. .	\$101,503	\$112,616	\$122,670	\$336,789	\$389,593	\$447,573	\$1,558,357

**Labor.** The labor budget illustrated in Table 32 shows the labor cost to appear in the statement of the cost of goods manufactured and sold.

**Manufacturing expense.** The material and labor budgets discussed in preceding chapters have been carried to the point of determining the costs of these elements per unit of finished product. To make a similar computation with respect to manufacturing expenses requires the adoption of some method of distributing these expenses to the units of product.

Many different methods of allocating the manufacturing expenses to units of production have been proposed by writers on cost accounting. These methods vary from the simple direct labor cost method to complicated machine-hour-rate methods.

The budget allocation should follow the cost accounting procedure adopted by the company. For purposes of illustration we shall assume that The Normadale Company uses the direct labor cost method; and to simplify the illustration further, we shall also assume that the company does not refine the procedure by the determination of different rates for different manufacturing departments, but uses one rate for the factory as a whole.



The allocation of the estimated manufacturing expenses for 1940 to products and the computation of a unit manufacturing expense rate are shown below:

Table 37

**THE NORMADALE COMPANY**  
**Allocation of Manufacturing Expense to Products**  
**For the Year Ending December 31, 1940**

	Product			<u>Total</u>
	<u>A</u>	<u>B</u>	<u>C</u>	
Labor budget (Table 32) . . . . .	\$121,800	\$361,237	\$70,000	\$553,037
Ratio to total . . . . .	22.02%	65.32%	12.66%	100%
Manufacturing expense budget (Table 34) apportioned to prod- ucts in labor ratio . . . . .	\$160,526	\$476,183	\$92,291	\$729,000
Units produced (Table 22) . . . . .	81,200	111,150	14,000	.....
Unit manufacturing expense rate . .	\$1.977	\$4.284	\$6.592	.....

For the year as a whole, the budgeted manufacturing expense will be absorbed by the estimated production. But at the ends of months and quarters throughout the year, there will be differences between the accumulated manufacturing expense budget and the amount absorbed on the basis of the estimated production and the unit manufacturing expense rates. The differences represent the underabsorbed or overabsorbed expense.

The amounts of absorbed manufacturing expense, by months and quarters, to be shown in the estimated statement of cost of goods manufactured (as well as the amounts of underabsorbed burden), are computed in Table 38.

**THE NORMADALE COMPANY**  
**Computation of Underabsorbed Manufacturing Expenses**  
**For the Year Ending December 31, 1940**

Item	First Quarter			Second Quarter	Third Quarter	Fourth Quarter	Total
	January	February	March				
<b>Product A:</b>							
Units produced (Table 22).....	6,766	6,767	6,767	20,300	20,300	20,300	81,200
Manufacturing expense rate (Table 37)...	\$ 1,977	\$ 1,977	\$ 1,977	\$ 1,977	\$ 1,977	\$ 1,977	\$ 1,977
Manufacturing expense absorbed (a) ..	<u>\$13,377</u>	<u>\$13,377</u>	<u>\$13,377</u>	<u>\$ 40,131</u>	<u>\$ 40,132</u>	<u>\$ 40,132</u>	<u>\$160,526</u>
<b>Product B:</b>							
Units produced (Table 22) ..	6,669	7,336	8,225	27,787	27,788	33,345	111,150
Manufacturing expense rate (Table 37)...	\$ 4,284	\$ 4,284	\$ 4,284	\$ 4,284	\$ 4,284	\$ 4,284	\$ 4,284
Manufacturing expense absorbed (a) ..	<u>\$23,571</u>	<u>\$31,428</u>	<u>\$35,237</u>	<u>\$119,043</u>	<u>\$119,048</u>	<u>\$142,856</u>	<u>\$476,183</u>
<b>Product C:</b>							
Units produced (Table 22).....	770	1,078	1,232	3,220	3,500	4,200	14,000
Manufacturing expense rate (Table 37)...	\$ 6,592	\$ 6,592	\$ 6,592	\$ 6,592	\$ 6,592	\$ 6,592	\$ 6,592
Manufacturing expense absorbed (a) ..	<u>\$ 5,076</u>	<u>\$ 7,106</u>	<u>\$ 8,121</u>	<u>\$ 21,226</u>	<u>\$ 23,072</u>	<u>\$ 27,690</u>	<u>\$ 92,291</u>
Total manufacturing expense absorbed....	<u>\$47,024</u>	<u>\$51,911</u>	<u>\$56,735</u>	<u>\$180,400</u>	<u>\$182,252</u>	<u>\$210,678</u>	<u>\$729,000</u>
Manufacturing expense budget (Table 34) ..	<u>58,627</u>	<u>59,537</u>	<u>59,948</u>	<u>180,554</u>	<u>179,225</u>	<u>191,109</u>	<u>729,000</u>
Accumulated underabsorbed manufacturing expenses.....	<u>\$11,603</u>	<u>\$19,229</u>	<u>\$22,442</u>	<u>\$ 22,596</u>	<u>\$ 19,569</u>	<u>\$ —</u>	<u>\$ —</u>

(a) Small adjustments were necessary, because manufacturing expense rates were not carried beyond three decimal places in the computation.

**Unit costs of manufacture.** Using the unit costs of material and labor developed in the budgets discussed in preceding chapters, and the unit manufacturing expense rates computed in Table 37, it is possible to prepare a statement (Table 39) showing the estimated unit cost, during the budget period, of manufacturing each of the three products.

**Cost of finished goods inventories.** Having determined the quantities in the beginning inventory of finished goods (Table 2), the quantities to be produced (Table 22), the quantities to be sold (Table 21), and the unit cost of manufacturing (Table 39), the computation of the cost of finished goods inventories by periods and by products is made in Table 40 on page 84.

Table 39

**THE NORMADALE COMPANY**  
**Estimated Unit Cost of Manufacturing**  
**For the Year Ending December 31, 1940**

	Material Rates (Table 23)	Unit Cost of Material (Table 27)	Material Cost per Unit	
<b>Product A:</b>				
Material:				
R.....	1.78	\$1.00	\$1.78	
S.....	.08	5.00	.40	
V.....	2.00	.20	.40	
Y.....	16.30	.10	1.63	
Z.....	3.50	.20	.70	\$ 4.910
Labor rate (Table 31).....				1.500
Manufacturing expense rate (Table 37).....				<u>1.977</u>
Total unit cost of manu- facturing.....				<u><u>\$ 8.387</u></u>
<b>Product B:</b>				
Material:				
R.....	1.85	\$1.00	\$1.85	
S.....	.08	5.00	.40	
T.....	5.00	.50	2.50	
V.....	2.50	.20	.50	
Y.....	18.50	.10	1.85	
Z.....	5.00	.20	1.00	\$ 8.100
Labor rate (Table 31).....				3.250
Manufacturing expense rate (Table 37).....				<u>4.284</u>
Total unit cost of manu- facturing.....				<u><u>\$15.634</u></u>
<b>Product C:</b>				
Material:				
R.....	1.63	\$1.00	\$1.63	
S.....	.08	5.00	.40	
T.....	7.50	.50	3.75	
V.....	3.00	.20	.60	
X.....	12.84	.75	9.63	
Y.....	12.65	.10	1.265	
Z.....	6.25	.20	1.25	\$18.525
Labor rate (Table 31).....				5.000
Manufacturing expense rate (Table 37).....				<u>6.592</u>
Total unit cost of manu- facturing.....				<u><u>\$30.117</u></u>

Table 40

**THE NORMADALE COMPANY**  
**Computation of Finished Goods Inventory**  
**For the Year Ending December 31, 1940**

Number of Units						
	Inven- tory Begin- ning of Period	Pro- duced (Table 22)	Sold (Table 21)	Inven- tory End of Period	Unit Cost (Table 39)	Inven- tory Cost
<b>Product A:</b>						
First quarter:						
December 31, 1939 (Table 2).....				16,000	\$ 8.387	\$134,192
January.....	16,000	6,766	6,137	16,629	8.387	139,467
February.....	16,629	6,767	4,910	18,486	8.387	155,042
March.....	18,486	6,767	6,487	18,766	8.387	157,391
Total.....	16,000	20,300	17,534	18,766		
Second quarter.....	18,766	20,300	22,316	16,750	8.387	140,482
Third quarter.....	16,750	20,300	25,504	11,546	8.387	96,836
Fourth quarter.....	11,546	20,300	14,346	17,500	8.387	146,773
Total.....	<u>16,000</u>	<u>81,200</u>	<u>79,700</u>	<u>17,500</u>	<u>      </u>	<u>      </u>
<b>Product B:</b>						
First quarter:						
December 31, 1939 (Table 2).....				25,000	\$15.634	\$390,850
January.....	25,000	6,669	8,112	23,557	15.634	368,290
February.....	23,557	7,336	10,274	20,619	15.634	322,357
March.....	20,619	8,225	8,652	20,192	15.634	315,682
Total.....	25,000	22,230	27,038	20,192		
Second quarter.....	20,192	27,787	21,630	26,349	15.634	411,940
Third quarter.....	26,349	27,788	27,037	27,100	15.634	423,681
Fourth quarter.....	27,100	33,345	32,445	28,000	15.634	437,752
Total.....	<u>25,000</u>	<u>111,150</u>	<u>108,150</u>	<u>28,000</u>	<u>      </u>	<u>      </u>
<b>Product C:</b>						
First quarter:						
December 31, 1939 (Table 2).....				1,500	\$30.117	\$ 45,176
January.....	1,500	770	900	1,370	30.117	41,260
February.....	1,370	1,078	1,260	1,188	30.117	35,779
March.....	1,188	1,232	1,440	980	30.117	29,514
Total.....	1,500	3,080	3,600	980		
Second quarter.....	980	3,220	2,400	1,800	30.117	54,211
Third quarter.....	1,800	3,500	1,800	3,500	30.117	105,410
Fourth quarter.....	3,500	4,200	4,200	3,500	30.117	105,410
Total.....	<u>1,500</u>	<u>14,000</u>	<u>12,000</u>	<u>3,500</u>	<u>      </u>	<u>      </u>

(Continued on next page)

Table 40—Concluded

**THE NORMADALE COMPANY**  
**Computation of Finished Goods Inventory**  
**For the Year Ending December 31, 1940**

<u>Summary for All Products</u>	<u>Product A</u>	<u>Product B</u>	<u>Product C</u>	<u>Total</u>
December 31, 1939. . . . .	\$134,192	\$390,850	\$ 45,176	\$570,218
January 31, 1940 . . . . .	139,467	368,290	41,260	549,017
February 29, 1940 . . . . .	155,042	322,357	35,779	513,178
March 31, 1940 . . . . .	157,391	315,682	29,514	502,587
June 30, 1940 . . . . .	140,482	411,940	54,211	606,633
September 30, 1940. . . . .	96,836	423,681	105,410	625,927
December 31, 1940 . . . . .	<u>146,773</u>	<u>437,752</u>	<u>105,410</u>	<u>689,935</u>

**Estimated cost of goods sold.** Table 41 shows the estimated cost of goods sold, by budget periods, for all products.

As a check of the accuracy of Table 41, the budgeted cost of goods sold can be recomputed by multiplying the number of units of each product to be sold by the unit cost of manufacturing. This is illustrated in Table 42 on page 87.

Table 41

**THE NORMADALE COMPANY**  
**Statement of Estimated Cost of Goods Sold**  
**For the Year Ending December 31, 1940**

Item	First Quarter			Second Quarter		Third Quarter		Fourth Quarter		Total
	January	February	March	Total	Quarter	Quarter	Quarter	Quarter	Quarter	
Materials used (Table 36).....	\$101,503	\$112,616	\$122,670	\$ 336,789	\$ 384,402	\$ 389,593	\$ 447,573	\$ 447,573	\$ 1,558,357	
Labor (Table 32) .....	35,674	39,382	43,041	118,097	136,858	138,261	159,821	159,821	553,037	
Manufacturing expense absorbed (Table 38).....	47,024	51,911	56,735	155,670	180,400	182,252	210,678	210,678	729,000	
Total cost of goods manufactured. . .	\$184,201	\$203,909	\$222,446	\$ 610,556	\$ 701,660	\$ 710,106	\$ 818,072	\$ 818,072	\$2,840,394	
Inventory finished goods at beginning of period (Table 40).....	570,218	549,017	513,178	570,218	502,587	606,633	625,927	625,927	570,218	
Total. ....	\$754,419	\$752,926	\$735,624	\$1,180,774	\$1,204,247	\$1,316,739	\$1,443,999	\$1,443,999	\$3,410,612	
Inventory finished goods at end of period (Table 40).....	549,017	513,178	502,587	502,587	606,633	625,927	689,935	689,935	689,935	
Cost of goods sold.....	\$205,402	\$239,748	\$233,037	\$ 678,187	\$ 597,614	\$ 690,812	\$ 754,064	\$ 754,064	\$2,720,677	

Table 42

**THE NORMADALE COMPANY**  
**Computation of Cost of Goods Sold, by Products**  
**For the Year Ending December 31, 1940**

	First Quarter			Second Quarter	Third Quarter	Fourth Quarter	Total
	January	February	March				
<b>Product A:</b>							
Units sold (Table 21).....	6,137	4,910	6,487	22,316	25,504	14,346	79,700
Unit cost (Table 39).....	\$ 8.387	\$ 8.387	\$ 8.387	\$ 8.387	\$ 8.387	\$ 8.387	\$ 8.387
Cost of goods sold.....	\$ 51,471	\$ 41,180	\$ 54,406	\$ 187,057	\$ 213,902	\$ 120,320	\$ 668,443
<b>Product B:</b>							
Units sold (Table 21).....	8,112	10,274	8,652	21,630	27,037	32,445	108,150
Unit cost (Table 39).....	\$ 15.634	\$ 15.634	\$ 15.634	\$ 15.634	\$ 15.634	\$ 15.634	\$ 15.634
Cost of goods sold.....	\$ 126,823	\$ 160,624	\$ 135,265	\$ 338,163	\$ 422,696	\$ 507,245	\$ 1,690,816
<b>Product C:</b>							
Units sold (Table 21).....	900	1,260	1,440	2,400	1,800	4,200	12,000
Unit cost (Table 39).....	\$ 30.117	\$ 30.117	\$ 30.117	\$ 30.117	\$ 30.117	\$ 30.117	\$ 30.117
Cost of goods sold.....	\$ 27,105	\$ 37,944	\$ 43,369	\$ 72,281	\$ 54,211	\$ 126,491	\$ 361,401
Total cost of goods sold.....	\$ 205,399	\$ 239,748	\$ 233,040	\$ 597,608	\$ 690,809	\$ 754,056	\$ 2,720,660

*Note.* The small differences between Tables 41 and 42 are caused by dropping fractions, and are too small to warrant adjustment for practical budgeting purposes.





## CHAPTER 10

### THE DISTRIBUTION EXPENSE BUDGET

**Distribution expenses.** The distribution expenses of a business include all costs in connection with selling and delivering the product, such as advertising, sales promotion, solicitation, order taking, packing, delivery, and the keeping of records of these activities, other than the financial accounting therefor.

As a rule, distribution expenses are classified in the accounts according to the nature of the expenditure, such as pay roll, rent, supplies, and postage, rather than according to the distribution function, such as sales promotion, order-taking, handling, and delivering. To best serve the purposes of budgeting, there should be sufficient subdivision of the expenses to permit localizing individual, departmental, or functional responsibility. This may be done through actual subdivision of the accounts or by supplementary analyses.

It may also be desirable to classify the expense accounts in such a manner as to permit the determination of the distribution expense for each product. Certain expenses may be identifiable as directly applicable to certain products; others will require apportionment on some basis considered equitable.

**Advertising.** The general recognition of the importance of having a definite appropriation for advertising is evidenced by the fact that such an appropriation is often made even when no other form of budget is used. If computed on a sound basis, it serves to control outlays and to assure the management that the sales department is receiving a well-considered amount of promotional support. If possible, the approximate amount of the advertising appropriation should be known before the sales estimates are pre-

pared, because of the obvious relation between advertising expenditures and probable sales.

The determination of the amount to be spent for advertising is generally influenced to a greater extent by management policy than by any possible computation of requirements on the basis of estimated volume of business during the budget period. Some of the factors to be considered are:

- (1) The expenditures in previous periods, and the effectiveness of such expenditures.
- (2) The extent of competitive advertising.
- (3) The plans under consideration for entering new markets, or for covering present markets more extensively or intensively.
- (4) The introduction of new products or substantial changes in present products.

There will usually arise, particularly during the promotional period of a business, the question of the relation of the advertising appropriation for the budget period to the amount of prospective profits for the period. A general division of situations may be made, as follows:

- (1) The situation may be such that the advantage of promoting sales may appear to outweigh the disadvantage of a loss on operations.  
The appropriation, in such a case, presumably will be fixed at the amount which it is considered desirable to spend for sales promotional purposes, and without primary consideration of immediate profits.
- (2) The allowance may be governed by the prospective amount of funds available from profits.  
In this case the appropriation may be set by deducting from the estimated gross profit the amount required for administrative and financial expenses plus an allowance for a satisfactory net profit; the remainder is the amount available for distribution expenses.

From this is subtracted the distribution expenses other than advertising, leaving a remainder available for advertising.

Of course, both of these considerations may enter into any one situation.

The total advertising appropriation should be subdivided as to types of media, such as newspapers, periodicals, trade papers, outdoor advertising, and direct-mail advertising, to provide a check on expenditures and a basis for comparison of results. In addition to these allotments, the amount of administrative expense chargeable to advertising must be included in the appropriation; this includes the salaries of the advertising manager and his assistants and clerical help, as well as the supplies, rent, light, and other items chargeable to the department.

It is advisable to keep the accounts in such a manner that the actual expenditures of various kinds can be checked against the appropriations therefor.

**Other distribution expenses.** There is some general relationship between sales volume and distribution expenses other than advertising, in that variations in distribution expenses from period to period will usually be found to be dependent mainly upon variations in sales volume or in methods of promoting sales. In this connection, consideration should be given to the effect, on expenses, of various sources of increased sales:

- (1) Increasing sales prices, the quantity volume remaining the same.
- (2) Increasing quantity volume, by selling more goods to present customers or by obtaining new customers. Increased quantity volume may result from:
  - (a) Spending more for advertising and sales promotion.
  - (b) Hiring additional salesmen.
  - (c) Requiring increased effort by present salesmen.

If the sales are increased through increased sales prices, quantity volume remaining the same, only a few of the distribution expenses will necessarily increase. The volume of work involved in handling orders will be the same and delivery costs will be the same, but more money may have been spent for advertising and promotion to overcome sales resistance.

When the quantity volume increases, most of the distribution expenses increase; the advertising and sales promotion expenses may not increase, however, in the same ratio as the sales volume. If the increased volume results from obtaining larger orders from present customers, neither the cost of delivery nor the credit and collection expenses will necessarily increase in proportion to sales. When additional salesmen are engaged for the purpose of seeking larger volume, provision must be made for the cost of training them until they become efficient producing units of the sales department.

A study of these relationships is an essential preparation for setting up a budget of distribution expenses; in other words, full consideration must be given to the prospective effect of budgeted sales, and the sources of increase therein, upon the distribution expenses. And conversely, the sales estimates are based, to some extent, on the assumption that certain selling and promotional expenditures will be made; provision for these outlays must be made in the budget, or the sales department can not be held responsible for the attainment of its quotas.

**The distribution expense budget illustrated.** It will be assumed that The Normadale Company tentatively determines the total allowance for administrative expenses by deducting from the estimated gross profit the budgeted amounts of administrative expenses and the approximate amount of net profit desired. The budget of administrative expenses (to be discussed in Chapter 11) is assumed to have been completed at this time. The budget of financial income and expenses cannot have been more than tenta-

tively developed, and the amount thereof will necessarily be estimated; for the purposes of the following computation, however, the amount is taken as finally determined.

Table 43

THE NORMADALE COMPANY	
Computation of Amount Available	
For Distribution Expenses	
For the Year Ending December 31, 1940	
Sales (Table 21).....	\$4,260,150
Cost of goods sold (Table 41).....	<u>2,720,677</u>
Gross profit.....	\$1,539,473
Deduct:	
Administrative expenses.....	\$401,200
Net financial expense.....	67,417
Approximate net profit desired...	<u>500,000</u>
Total deductions .....	<u>968,617</u>
Approximate amount available for distribution expenses.....	<u>\$ 570,856</u>

This computation shows the amount which can be spent for distribution expenses if the other budget estimates are realized; it is not necessarily the amount to be taken up in the budget. It may be more than is finally decided upon as necessary; on the other hand, an increase may be considered desirable to protect the sales estimates or to develop the sales volume.

The following table shows the administrative expenses other than advertising, for 1939 and as estimated for 1940:

Table 44

THE NORMADALE COMPANY		
Distribution Expenses—Except Advertising		
For the Year Ending December 31, 1940		
	1939	1940
	<u>Actual</u>	<u>Estimated</u>
Sales managers' salaries.....	\$ 25,000	\$ 28,000
Salesmen's salaries.....	125,000	150,000
Sales clerical expenses.....	12,000	15,000
Rent of sales office.....	15,000	18,000
Traveling expense.....	35,000	45,000
Commissions and bonuses.....	75,000	88,888
Delivery expense.....	<u>85,000</u>	<u>99,925</u>
Total.....	<u>\$372,000</u>	<u>\$444,813</u>

The 1940 estimates of the three items of salaries were based on 1939 experience, adjusted for additional employees and changes in salary rates. The increase in rent represents the cost of prospective additional space.

The estimate for commissions and bonuses was computed as follows:

<u>Product</u>	<u>Estimated Sales in Units (Table 21)</u>	<u>Compen- sation Rate</u>	<u>Compen- sation</u>
A.....	79,700	\$1.00	\$ 79,700
B.....	108,150	1.25	135,188
C.....	12,000	2.00	24,000
Total .....	<u>199,850</u>		<u>\$238,888</u>
Less guaranteed salaries ..			<u>150,000</u>
Commissions and bonuses..			<u>\$ 88,888</u>

Delivery expenses were estimated at the rate of \$.50 per unit of product sold. ( $$.50 \times 199,850 = \$99,925.00$ .)

The amount available for advertising may now be computed as follows:

Table 45

**THE NORMADALE COMPANY**  
**Computation of Available Allowance for Advertising**  
**For the Year Ending December 31, 1940**

Amount available for distribution expenses (Table 43)...	\$570,868
Less distribution expenses other than advertising (Table 44)	<u>444,813</u>
Remainder available for advertising.....	<u>\$126,055</u>

The advertising expenditures for 1939 were \$200,000. Some of these expenditures did not produce satisfactory results, and they will not be repeated in 1940. However, it appears that the total of \$126,055 will not be sufficient, and it is agreed that the appropriation shall be increased to \$132,067. This is apportioned to the various classes of advertising to be used, so that comparisons of actual expenditures with budget estimates can be made as to each class.

The estimates of all distribution expenses being now completed, it remains to allocate them to the subdivisions of the budget period. The bases for such an allocation are matters for special consideration in each situation; those adopted by The Normadale Company are summarized as follows:

Salaries—Total estimated salaries of probable employees during each period.

Traveling expenses—On the basis of the number of salesmen during each period.

Commissions and bonuses—Amount remaining after deducting salesmen's salaries for the period from the total compensation for the period computed by multiplying the budgeted sales by the compensation rates. (See Table 46.)

Delivery expenses—50 cents per unit of budgeted sales.

All other expenses—An equal amount each month.

The complete budget of distribution expenses for 1940 is shown in Table 47.



Table 46

**THE NORMADALE COMPANY**  
**Computation of Commissions and Bonuses, by Periods**  
**For the Year Ending December 31, 1940**

	Product A—\$1.00		Product B—\$1.25		Product C—\$2.00		Total	Less Salaries	Commis- sions and Bonuses
	Units Sold (Table 21)	Total Cost	Units Sold (Table 21)	Total Cost	Units Sold (Table 21)	Total Cost	Compensa- tion All Products		
<b>First Quarter:</b>									
January.....	6,137	\$ 6,137	8,112	\$ 10,140	900	\$ 1,800	\$ 18,077	\$ 9,000	\$ 9,077
February.....	4,909	4,909	10,274	12,843	1,260	2,520	20,272	13,500	6,772
March.....	6,488	6,488	8,652	10,815	1,440	2,880	20,183	13,500	6,683
Total.....	17,534	\$17,534	27,038	\$ 33,798	3,600	\$ 7,200	\$ 58,532	\$ 36,000	\$22,532
<b>Second Quarter.....</b>	22,316	22,316	21,630	27,038	2,400	4,800	54,154	34,500	19,654
<b>Third Quarter.....</b>	25,504	25,504	27,037	33,796	1,802	3,604	62,904	37,500	25,404
<b>Fourth Quarter.....</b>	14,346	14,346	32,445	40,556	4,198	8,396	63,298	42,000	21,298
<b>Total.....</b>	79,700	\$79,700	108,150	\$135,188	12,000	\$24,000	\$238,888	\$150,000	\$88,888

88 First Quarter:

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## CHAPTER 11

### THE ADMINISTRATIVE EXPENSE BUDGET

**Administrative expenses.** Administrative expenses, in general, are those connected with the supervision of all of the major functions of the business rather than with any one of them specifically. Their nature is suggested by the following list:

Executive expenses:

Salaries.

Traveling expenses.

Corporate expenses:

Directors' fees.

Legal, accounting, engineering, and other professional services.

Taxes—Franchise, capital stock.

Office expenses:

Salaries.

Telegraph.

Rent.

Light.

Depreciation.

Insurance.

Supplies.

Repairs.

Postage.

Unclassified.

Telephone.

Credit and collection expenses:

Salaries.

Reports.

Supplies.

Bad debts.

**Control of administrative expenses.** Because many of the administrative expenses are incurred in small amounts, their aggregate effect upon operations is often not recognized until the profit-and-loss statement is prepared. Savings are likely to result if these expenses are controlled through a budget with recognition of individual responsibility for expenditures. However, it appears that, to a greater degree than in other classes of expense, the responsi-

bility for fixing the amounts of budgeted expense may lie with one individual or group whereas the responsibility for carrying out the budget lies elsewhere. This will be illustrated by a few examples.

Executive expenses may be fixed by the board of directors, while the responsibility for keeping within the limits of the budget lies with the executives themselves. Corporate expenses, of the nature indicated by the above list, may be estimated by the chief financial officers, although expenditures therefor may be made by authorization of others. The office pay roll may be fixed by one of the managing executives, but the responsibility for keeping the expenditures in line with the budget may devolve upon the office manager.

**Preparation of the budget.** The administrative expenses of prior years should be analyzed as the first step in the preparation of this budget. Such an analysis should disclose helpful information, partly by showing the amounts of prior periods' expenditures, and partly by indicating the extent to which the expenses can be classified as fixed and variable.

This historical analysis should include a rigid scrutiny of past expenditures from the standpoint of their propriety or necessity. If costs have been increasing at rates out of reasonable proportion to increases in sales or production, the reasons therefor should be discovered. A study of the office routine and a check of the reports and statistics being prepared often reveal a duplication of effort. Centralization of all clerical operations under one supervisor helps to eliminate costly duplication and to co-ordinate the reports. The principles of scientific management may be applied to office operations in much the same manner as they are applied to factory operations. Time and motion studies and the development of piece rates or bonus incentives for office work may be a profitable corollary of the budgeting of administrative expenses.

**The administrative expense budget illustrated.** The Normadale Company's estimates of administrative expenses

for 1940 are based largely upon the actual expenses for 1939, consideration being given, however, to expected changes in operations and in the volume of business.

The executive salaries are stated at the total amount fixed by the board of directors.

The office rent is an apportionment of the building expense, as shown by the budget thereof. The depreciation estimate was computed by applying the established rates to the balances of the office equipment accounts plus the estimated cost of additions provided for in the budget of capital additions.

The estimated insurance expense is the amount of premiums applicable to the budget period; it was determined by an analysis of the insurance register as to insurance to be kept in force.

Taxes were estimated from a study of the amounts paid in prior years; the budget estimate is the amount to accrue during the year—not necessarily the amount to be paid.

The estimate of office salaries was determined by an analysis of the pay roll, with allowances for changes in rates and for additions or reductions in personnel. The amount shown by the budget should be supported by a list of employees, either by name or position, grouped by departments or divisions in such a manner that the responsibility for any subsequent variations between the budget and the actual payments can be allocated to individuals.

The amount to be spent for office supplies was based largely on experience, with consideration of any proposed changes in office procedure involving the use of new forms and records.

Whether a company provides a reserve for bad debts or charges losses to expense as they are determined, the budgeted bad debt loss will be based on the customary reserve procedure or the loss experience, modified by an analysis of the existing accounts receivable and recognition of differences between the present or prospective conditions and conditions previously existing in the industry and any contemplated changes in credit policy. The Normadale Com-

pany's estimate was equal to one and one-half per cent of the estimated sales.

The estimate of postage was based upon experience, with adjustment for known or expected changes in postal rates and quantity of mail. Postage expenses may be apportioned to departments to assist in localizing responsibility for variations from the budget. Telegraph and telephone expenses may be similarly estimated and similarly apportioned.

Credit and collection expense covers the cost of obtaining various reports and services, as well as fees of collection agencies. The estimate of such expenses is based upon the costs incurred in prior periods, adjusted to take into account expected changes in credit or collection policies and present and prospective economic conditions affecting collections.

Legal, accounting, engineering, and other professional services include the cost of retainers and special services to be required.

Unclassified expenses comprise those expenditures which are too small in amount to warrant separate classification. The estimate used in the budget is based upon the amount of such expenditures in prior periods.

The estimate of repairs of office equipment is based upon experience and an inspection of the equipment to determine the possible necessity of extensive repairs.

Light expense is estimated on the basis of experience and any anticipated changes in working conditions or hours which may affect the amount of light used.

Table 48 shows the amounts of the administrative expenses of 1939, the amounts budgeted for the year 1940, and the apportionment of these amounts by months and quarters.

As with the other expense budgets, previously illustrated, no attempt has been made to resolve the administrative expense budget illustration into elements of controllable and uncontrollable expense and other details which would be helpful in making effective comparisons and enforcing the budget.

Table 48

**THE NORMADALE COMPANY**  
**Administrative Expense Budget**  
**For the Year Ending December 31, 1940**

	1939 Actual	Estimated 1940						
		First Quarter			Total	Second Quarter	Third Quarter	Fourth Quarter
Item		January	February	March				
Executive salaries.....	\$115,000	\$10,833	\$10,833	\$10,834	\$32,500	\$32,500	\$32,500	\$32,500
Office rent .....	16,000	1,333	1,333	1,334	4,000	4,000	4,000	4,000
Depreciation of office equipment	15,000	1,333	1,333	1,334	4,000	4,000	4,000	4,000
Insurance.....	1,500	125	125	125	375	375	375	375
Taxes.....	8,000	733	733	734	2,200	2,200	2,200	2,200
Office salaries.....	95,000	7,280	7,280	7,280	21,840	24,960	27,040	30,160
Office supplies.....	16,000	1,260	1,260	1,260	3,780	4,320	4,680	5,220
Bad debts.....	60,000	4,821	5,681	5,492	15,994	13,928	16,079	17,899
Postage.....	3,500	315	315	315	945	1,080	1,170	1,305
Telephone and telegraph.....	6,000	420	420	420	1,260	1,440	1,560	1,740
Credit and collection expense...	12,000	1,120	1,120	1,120	3,360	3,840	4,160	4,640
Professional services.....	10,000	800	800	1,600	3,200	1,600	800	2,400
Unclassified expense.....	6,000	500	500	500	1,500	1,500	1,500	1,500
Repairs of office equipment.....	1,000	83	83	84	250	250	250	250
Light .....	1,500	225	150	150	525	225	225	525
Total.....	\$366,500	\$31,181	\$31,966	\$32,582	\$95,729	\$96,218	\$100,539	\$108,714





## CHAPTER 12

### THE CASH BUDGET

**Purpose of the cash budget.** Insufficient capital is one of the principal causes of business failures. In many cases this condition could have been avoided if the need for additional capital had been forecast and plans made in advance to secure the funds. But the probable cash requirements are seldom carefully computed and compared with estimated cash receipts. Too often the need for additional cash is not known until the condition becomes desperate. The improper temporary measures frequently used to secure funds to meet the immediate requirements are likely, in the end, to weaken the financial structure. A carefully outlined program indicating what financing will be required and how it is to be provided will be helpful in exercising intelligent financial control.

Many bankers require comprehensive estimates of cash receipts and disbursements before making loans. Such estimates provide a basis for granting loans and fixing their duration. Debtors are generally required to submit, in addition to such estimates, periodic statements comparing the actual receipts and disbursements with the estimates. But whether such information be required or not, better results are likely to follow an application for credit if a schedule is submitted therewith showing the periods in which borrowings will be needed and the periods in which excess receipts will be available for the repayment of loans.

**Scope of the cash budget.** The cash budget is divided into two parts, the first part covering an estimate of the cash receipts, and the second part showing an estimate of the cash disbursements. A comparison, by periods, of the expected receipts and disbursements will indicate when addi-

tional funds will be needed or when an excess of funds will be available for the reduction of obligations.

**Estimating cash receipts.** The method of forecasting cash receipts depends upon the kind of business for which the budget is being prepared. In a manufacturing or merchandising business, the principal item of receipts consists of collections from accounts and notes receivable and from cash sales. If all the sales were cash transactions, the estimated sales, as shown by the sales budget, would represent the estimated cash receipts from that source. But this is seldom the case, since sales generally are made on a credit basis and there is a lag between sales and collections.

If there are no seasonal peaks in sales or collections, the year's cash collections on receivables may be estimated as follows:

First, find (for the year preceding the budget period) the per cent of the year's sales included in the receivables at the end of the year, thus:

Sales (less provision for bad debts) for year 1940. .	\$5,950,000
Accounts receivable, December 31, 1940 (less reserve for bad debts) . . . . .	1,840,000
Per cent of sales uncollected. . . . .	30.92%

Then estimate the collections thus:

Accounts receivable, December 31, 1940 (less reserve for bad debts) . . . . .	\$1,840,000
Estimated sales (less provision for bad debts) for year 1941. . . . .	6,250,000
Total. . . . .	\$8,090,000
Estimated net accounts receivable, December 31, 1941—30.92% of \$6,250,000. . . . .	1,932,500
Estimated collections for year 1941. . . . .	<u>\$6,157,500</u>

A similar procedure may be followed in estimating the receipts by months and quarters during the year.

If there are seasonal variations in sales or collections, the foregoing procedure should not be used, as it is based on the assumption of a uniform flow of business throughout the year. Under such conditions it will be preferable to deter-

mine, as of the end of each month during prior years, the per cent of sales for the month (or some longer period) remaining uncollected. By applying these per cents to the budgeted sales, it will be possible to estimate the uncollected receivables at each month end during the budget year, and then to estimate the monthly collections.

If most of the sales are made to a few large customers and the remainder are made to a great number of smaller customers, it may be desirable to forecast the collections by estimating the receipts from the larger customers on the basis of their individual paying habits and by estimating the receipts from the group of smaller customers on the basis of an averaged collection experience with them.

A satisfactory method of estimating collections is often found by analyzing past records to show what percentage of each month's sales is collected in each month following the sale. This method will be illustrated in connection with the preparation of the budget of The Normadale Company.

Generally it may be said that the relationship between sales and collections depends upon the terms of the sale, the type of customers served, and the policies of the credit and collection departments. The analysis to determine this relationship should cover a period sufficiently long to include seasonal fluctuations.

Receipts from sources other than the sale of goods will be estimated on such bases as may be established by analysis of the experience of prior periods. Income from investments, if any, may usually be forecast with a reasonable degree of accuracy. The probable conversion of any investments to meet cash requirements will naturally receive consideration. Analysis of receipts shown by the cash book for prior years will indicate what other forms of occasional cash income should be included in the estimates.

**The cash receipts budget illustrated.** The Normadale Company provides for losses from bad debts at the rate of 1.5% of sales. The expected collections on customers' accounts are, therefore, 98.5% of the amount originally

billed. A study of the cash receipts of prior periods indicates that, on the average, this portion (98.5%) of any month's billing is collected as follows:

In the month billed.....	7%
In the following months:	
First month.....	30
Second month.....	30
Third month.....	15
Fourth month....	10
Fifth month... .	5
Sixth month.....	3
Total.....	<u>100%</u>

This means that an average of 7 per cent of the amount of each month's sales (after provision for bad debts) is collected in that month, 30 per cent the following month, 30 per cent the month after that, and diminishing per cents thereafter through the sixth month.

The accounts receivable balances on December 31, 1939, amount to \$800,000, and the reserve for bad debts is \$80,000 at that date. The net amount of \$720,000 represents the expected collectible balance receivable from customers. For the purpose of forecasting the collections from these accounts, the gross accounts receivable are classified according to the month of billing and the reserve is detailed according to the billing against which it applies, as follows:

Table 49

**THE NORMADALE COMPANY**  
**Schedule of Net Accounts Receivable**  
**On December 31, 1939**

<u>Month Billed</u>	<u>Accounts Receivable</u>	<u>Reserve for Bad Debts</u>	<u>Net</u>
December.....	\$330,250	\$ 5,250	\$325,000
November.....	196,500	6,500	190,000
October.....	107,500	7,500	100,000
September.....	74,000	9,000	65,000
August.....	41,000	11,000	30,000
July and previous....	50,750	40,750	10,000
Total.....	<u>\$800,000</u>	<u>\$80,000</u>	<u>\$720,000</u>

In the absence of any indication that the collections already made on these accounts are substantially out of line with the table of average experience, it may be assumed that the table is a reasonably reliable basis for estimating future collections on these receivables. The method of determining the estimated collections of the net accounts receivable is illustrated by the computation of the estimated collections of net receivables arising from December billings. The amount remaining to be collected after deducting the portion of the reserve for bad debts applicable to December billing is \$325,000. According to the collection table, this amount is 93% (100% less 7% presumably collected in December) of the originally expected collections on the billing for that month. The collectible portion of the billing is assumed then to have been  $\$325,000 \div .93$ , or \$349,462. The January collections are estimated at 30% of this amount, or \$104,839. On the basis of the foregoing the collections on accounts receivable are estimated by months, for the budget year, as in Table 50.

# THE NORMADALE COMPANY

Table 50

## Computation of Estimated Collections from Accounts Receivable

For the Year Ending December 31, 1940

Item	Amount	Less Re-serve for Bad Debts (Table 48)	Balance to be Collected	Distribution to Periods					Balance December 31, 1940		
				First Quarter				Second Quarter		Third Quarter	Fourth Quarter
				January	February	March	Total				
Net accounts receivables, December 31, 1939 (Table 49):											
July sales.....	\$ 10,000	\$	\$ 10,000	\$ 10,000	\$ 11,250	\$ 10,000					
August sales.....	30,000		30,000	18,750		30,000					
September sales.....	65,000		65,000	36,111	18,056						
October sales.....	100,000		100,000	45,454	30,303	15,152	\$ 9,091				
November sales.....	190,000		190,000	90,476	45,238	30,159	24,127				
December sales.....	325,000		325,000	104,839	104,839	52,419	62,903				
Estimated sales (Table 21):											
January.....	321,444	\$ 4,821	316,623	22,164	94,987	94,987	\$ 9,498				
February.....	378,770	5,681	373,089		26,116	111,927	205,199	29,847			
March.....	366,144	5,492	360,652			25,246	270,489	64,917			
April.....	309,514	4,643	304,871				204,264	91,461	\$ 9,146		
May.....	309,514	4,643	304,871				112,802	167,679	24,390		
June.....	309,514	4,642	304,872				21,341	228,654	54,877		
July.....	357,324	5,360	351,964					235,816	105,589	\$ 10,559	
August.....	357,324	5,360	351,964					130,227	193,580	28,157	
September.....	357,325	5,359	351,966					130,227	263,974	63,354	
October.....	397,759	5,966	391,793					24,638	262,501	129,292	
November.....	397,759	5,966	391,793						144,963	246,830	
December.....	397,759	5,967	391,792						27,426	364,366	
Total.....	\$4,980,150	\$63,900	\$4,916,250	\$327,794	\$330,789	\$340,723	\$999,306	\$982,737	\$1,086,446	\$842,558	

Note. For the purpose of the computations in this table, the sales for the second, third, and fourth quarters were apportioned equally to the months within each quarter.

**Cash requirements.** The budgets for labor, material purchases, and expenses of various kinds, developed in the preceding chapters, will now serve as bases for estimating the cash requirements.

**Cash required for labor.** The direct labor expense was estimated in the labor budget, Table 32. It is assumed that the pay roll is paid on a semimonthly basis and that there is no accrual at the beginning or end of the budget period. The labor cost therefore coincides with the cash requirements for pay-roll payments.

**Cash required for material purchases.** The material-purchase budget appears in Table 29, but this table shows the amounts of estimated purchases—not the estimated cash disbursements.

A company's paying policy is an important factor in estimating its cash requirements for payments to material suppliers. Some companies with adequate cash balances pay all invoices as soon as they are approved, regardless of the due date thereof. Other companies make it a practice to pay all invoices on the tenth of the month following the date of receipt. In estimating the cash requirements of The Normadale Company, we shall assume that each month's receipts of material are to be paid for in the succeeding month.

On the basis of outstanding accounts payable of \$100,000 on December 31, 1939, the purchases budgeted in Table 29, and the paying policy stated above, the cash requirements for material purchases are computed in Table 51.



**THE NORMADALE COMPANY**  
**Estimated Cash Required for Material Purchases**  
**For the Year Ending December 31, 1940**

Table 51

	Accounts Payable at Be- ginning of Period	Material Purchases of (Table 29)	Accounts Payable at End of Period	Invoices of Payable	Dis- count	Cash Required
First quarter:						
January . . .	\$100,000	\$ 113,403	\$113,403	\$ 100,000	\$ 5,000	\$ 95,000
February . . .	113,403	112,316	112,316	113,403	5,670	107,733
March . . . . .	112,316	123,845	123,845	112,316	5,616	106,700
Total . . .	<u>\$100,000</u>	<u>\$ 349,564</u>	<u>\$123,845</u>	<u>\$ 325,719</u>	<u>\$16,286</u>	<u>\$ 309,433</u>
Second quarter	123,845	395,427	131,809	387,463	19,373	368,090
Third quarter .	131,809	402,693	134,231	400,271	20,014	380,257
Fourth quarter	134,231	462,673	154,224	442,680	22,134	420,546
Total . . .	<u>\$100,000</u>	<u>\$1,610,357</u>	<u>\$154,224</u>	<u>\$1,556,133</u>	<u>\$77,807</u>	<u>\$1,478,326</u>

For purposes of the foregoing computation, it is assumed that the purchases for the second, third, and fourth quarters are evenly divided by months.

**Cash required for expenses.** The principal expense budgets developed in the preceding chapters were: manufacturing expenses (Table 34); distribution expenses (Table 47); and administrative expenses (Table 48).

These tables showed the estimated amounts to be charged to operations during the budget year, and during months and quarters thereof. The determination of the cash requirements for the payment of these expenses requires some preliminary consideration of reserves, deferred and accrued items, and service departments.

**Reserves.** Depreciation and bad debts, and similar expenses involving credits to reserves, do not require cash expenditures. They will therefore not be included in the estimates of cash requirements.

**Deferred and accrued items.** Insurance and taxes serve as illustrations of expenses having cash requirements affected by deferred and accrued items. The amounts paid during the budget year will not, ordinarily, equal the expenses for the year; the differences will be reflected in increases or decreases in the related deferred and accrued

accounts. Moreover, the estimated expenses will be spread as evenly as practicable over the year, but the cash disbursements will be made at irregular intervals.

The cash requirements for insurance and taxes of The Normadale Company are estimated in Table 52.

Table 52

**THE NORMADALE COMPANY**  
Schedule of Insurance and Tax Estimates  
For the Year Ending December 31, 1940

	<u>Insurance</u>	<u>State and Local Taxes</u>	<u>Federal Income Taxes</u>
Balances, December 31, 1939:			
Unexpired insurance.....	\$12,000		
Accrued taxes.....		\$38,000	\$50,000
Expense for the year.....	35,500	48,800	Note
Cash requirements.....	37,000	46,800	50,000
Balances, December 31, 1940:			
Unexpired insurance.....	13,500		
Accrued taxes.....		<u>40,000</u>	<u>Note</u>
Cash requirements by periods:			
First quarter:			
January.....	\$ 2,000		
February.....	1,000		
March.....	<u>4,000</u>		<u>\$12,500</u>
Total.....	\$ 7,000		\$12,500
Second quarter.....	10,000	\$38,000	12,500
Third quarter.....	12,000	8,800	12,500
Fourth quarter.....	<u>8,000</u>		<u>12,500</u>
Total.....	<u>\$37,000</u>	<u>\$46,800</u>	<u>\$50,000</u>

*Note.* The cash requirement for Federal income taxes consists of the amount of the liability therefor at the beginning of the year. The tax expense for the budget year is not determinable until the statement of estimated profit and loss is prepared.

**Service departments.** The estimates of the cash requirements for expenses of service departments should be based on the budgets of these departments.

A service department budget was illustrated by the building expense estimates in Table 33. The related cash requirement estimate is illustrated in Table 53. Note that the depreciation does not involve any cash requirements, and that the cash requirements for taxes and insurance are omitted from this table because provision was made therefor in a separate schedule (Table 52).

Table 53

**THE NORMADALE COMPANY**  
**Estimated Cash Requirements for Building Expenses**  
**For the Year Ending December 31, 1940**

Items	Expense (Table 33)	Cash Required					
		Exclusions	First Quarter			Total	Fourth Quarter
			January	February	March		
Real estate taxes.....	\$ 40,000	\$ 40,000					
Depreciation.....	80,000	80,000					
Insurance.....	12,000	12,000					
Repairs and upkeep.....	64,000						
Total.....	\$196,000	\$132,000	\$5,333	\$5,333	\$5,334	\$16,000	\$16,000
			\$5,333	\$5,333	\$5,334	\$16,000	\$16,000
						\$16,000	\$16,000

**Manufacturing, distribution, and administrative expenses.** The estimates of cash requirements for manufacturing, distribution, and administrative expenses shown in the following tables, 54, 55, and 56, are based on the related expense budgets in Tables 34, 47, and 48. It should be noted that:

- (a) There are no cash requirements for depreciation and bad debts. The tables indicate that these are noncash items.
- (b) The items of rent expense are regarded as non-cash items as far as these tables are concerned because the cash requirements have been estimated elsewhere.
- (c) No cash requirements for insurance and taxes are set up in these tables because the cash requirements for these expenses are shown in Table 51.

Table 54

**THE NORMADALE COMPANY**  
**Estimated Cash Requirements for Manufacturing Expenses**  
**For the Year Ending December 31, 1940**

Items	Expense (Table 34)	Exclu- sions	Cash Required						
			Total	First Quarter			Second Quarter	Third Quarter	Fourth Quarter
				January	February	March	Total		
Indirect labor.....	\$ 70,000		\$ 70,000	\$ 4,816	\$ 5,152	\$ 5,502	\$15,470	\$17,409	\$19,621
Indirect material.....	75,000		75,000	5,160	5,520	5,895	16,575	18,653	21,022
Repairs.....	60,000		60,000	4,128	4,416	4,716	13,260	14,922	16,818
Power.....	42,000		42,000	2,890	3,091	3,301	9,282	10,445	11,773
Heat.....	16,500		16,500	2,475	2,475	1,650	6,600	3,300	4,950
Light.....	5,500		5,500	825	550	550	1,925	825	1,925
Factory rent.....	180,000	\$180,000							
Depreciation.....	240,000	240,000							
Insurance.....	22,000	22,000							
Factory office expense.....	18,000		18,000	1,500	1,500	1,500	4,500	4,500	4,500
Total.....	\$729,000	\$442,000	\$287,000	\$21,794	\$22,704	\$23,114	\$67,612	\$70,054	\$80,609

**THE NORMADALE COMPANY**  
**Estimated Cash Requirements for Distribution Expenses**  
**For the Year Ending December 31, 1940**

Items	Expense (Table 47)	Exclu- sions	Cash Required						
			Total	First Quarter			Second Quarter	Third Quarter	Fourth Quarter
				January	February	March			
Sales managers' salaries...	\$ 28,000		\$ 28,000	\$ 2,333	\$ 2,333	\$ 2,334	\$ 7,000	\$ 7,000	\$ 7,000
Rent of sales office.....	18,000		18,000	1,500	1,500	1,500	4,500	4,500	4,500
Sales clerical expense.....	15,000		15,000	1,250	1,250	1,250	3,750	3,750	3,750
Sales salaries .....	150,000		150,000	9,000	13,500	13,500	34,500	37,500	42,000
Commissions and bonuses	88,888		88,888	9,077	6,772	6,683	19,654	25,404	21,298
Delivery expenses.....	99,925		99,925	7,575	8,221	8,290	23,173	27,172	25,494
Traveling expense.....	45,000		45,000	2,700	4,050	4,050	10,350	11,250	12,600
Advertising.....	132,067		132,067	13,207	10,565	11,886	33,017	26,413	36,979
Total.....	\$576,880		\$576,880	\$46,642	\$48,191	\$49,493	\$135,944	\$142,989	\$153,621

Item	Expense (Table 48)	Exclu- sions	Cash Required						
			Total	January	February	March	Total	Second Quarter	Third Quarter
Executive salaries.....	\$130,000		\$130,000	\$10,833	\$10,833	\$10,834	\$32,500	\$32,500	\$32,500
Office rent.....	16,000	\$ 16,000							
Depreciation.....	16,000	16,000							
Insurance.....	1,500	1,500							
Taxes.....	8,800	8,800							
Office salaries.....	104,000		104,000	7,280	7,280	7,280	21,840	24,960	30,160
Office supplies.....	18,000		18,000	1,260	1,260	1,260	3,780	4,320	5,220
Bad debts.....	63,900	63,900							
Postage.....	4,500		4,500	315	315	315	945	1,080	1,305
Telephone and telegraph.....	6,000		6,000	420	420	420	1,260	1,440	1,740
Credit and collection expense.....	16,000		16,000	1,120	1,120	1,120	3,360	3,840	4,640
Professional service.....	8,000		8,000	800	800	1,600	3,200	1,600	2,400
Unclassified expense.....	6,000		6,000	500	500	500	1,500	1,500	1,500
Repairs.....	1,000		1,000	83	83	84	250	250	250
Light.....	1,500		1,500	225	150	150	525	225	525
Total.....	\$401,200	\$106,200	\$295,000	\$22,836	\$22,761	\$23,563	\$69,160	\$71,715	\$80,240

**Cash required for capital additions.** The Normadale Company plans to expand its plant facilities to take care of an expected increase in volume during the next year. The cost of the additions and the cash requirements by periods are shown in Table 57.

Table 57

THE NORMADALE COMPANY				
Capital Additions Budget				
For the Year Ending December 31, 1940				
<u>Period</u>	<u>Land</u>	<u>Buildings</u>	<u>Equipment</u>	<u>Total</u>
First quarter:				
January.....			\$ 10,000	\$ 10,000
February.....			15,000	15,000
March .....	_____	\$ 25,000	10,000	35,000
Total.....		\$ 25,000	\$ 35,000	\$ 60,000
Second quarter.....	\$75,000	80,000	50,000	205,000
Third quarter... ..		200,000	75,000	275,000
Fourth quarter.....		30,000	40,000	70,000
Total.....	<u>\$75,000</u>	<u>\$335,000</u>	<u>\$200,000</u>	<u>\$610,000</u>

**Tentative summary of cash requirements.** All sources of probable cash requirements now have been taken into consideration except interest and dividends. Interest requirements cannot be computed until the financial budget has been tentatively summarized. The regular annual dividends of \$300,000 are payable in March and September. A tentative summary of the estimated cash requirements appears as Table 58.



Table 58

**THE NORMADALE COMPANY**  
**Tentative Summary of Estimated Cash Requirements**  
**For the Year Ending December 31, 1940**

		First Quarter					Second Quarter	Third Quarter	Fourth Quarter
Table	Total	January	February	March	Total				
32 Labor.....	\$ 553,037	\$ 35,674	\$ 39,382	\$ 43,041	\$118,097	\$	\$ 136,858	\$ 138,261	\$ 159,821
51 Materials.....	1,478,326	95,000	107,733	106,700	309,433		368,090	380,257	420,546
52 Insurance.....	37,000	2,000	1,000	4,000	7,000		10,000	12,000	8,000
52 Local taxes.....	46,800						38,000	8,800	
52 Federal income taxes.....	50,000			12,500	12,500		12,500	12,500	12,500
53 Building expenses.....	64,000	5,333	5,333	5,334	16,000		16,000	16,000	16,000
54 Manufacturing expenses....	287,000	21,794	22,704	23,114	67,612		70,054	68,725	80,609
55 Distribution expenses.....	576,880	46,642	48,191	49,493	144,326		135,944	142,989	153,621
56 Administrative expenses....	295,000	22,836	22,761	23,563	69,160		71,715	73,885	80,240
57 Capital additions.....	610,000	10,000	15,000	35,000	60,000		205,000	275,000	70,000
Dividends.....	300,000			150,000	150,000			150,000	
	<u>\$4,298,043</u>	<u>\$239,279</u>	<u>\$262,104</u>	<u>\$452,745</u>	<u>\$954,128</u>		<u>\$1,064,161</u>	<u>\$1,278,417</u>	<u>\$1,001,337</u>
Total.....									

**Comparison of cash receipts and cash requirements.** The estimated cash receipts and the tentatively estimated cash requirements for months and quarters are summarized and compared in Table 59.

Table 59

THE NORMADALE COMPANY					
Comparison of Estimated Cash Receipts and Disbursements					
For the Year Ending December 31, 1940					
	Receipts (Table 50)	Requirements (Table 58)	Excess	Deficit	Cash Balance
December 31, 1939					\$200,000
First quarter:					
January.....	\$ 321,238	\$ 239,279	\$81,959		281,959
February.....	324,173	262,104	62,069		344,028
March.....	333,909	452,745		\$118,836	225,192
Total.. . . .	\$ 979,320	\$ 954,128	\$25,192		\$225,192
Second quarter....	985,099	1,064,161		\$ 79,062	146,130
Third quarter.....	963,082	1,278,417		315,335	169,205*
Fourth quarter. . .	1,064,717	1,001,337	63,380		105,825*
Total.....	<u>\$3,992,218</u>	<u>\$4,298,043</u>		<u>\$305,825</u>	<u>\$105,825*</u>

\* Deficit

**Financing the program.** Table 59 indicates a tentative negative cash balance, at some time during the third quarter, of \$169,205. It indicates, further, that at no time will any accumulated excess of cash be available in sufficient amount and for a sufficient period to justify any expectation of reducing the bank loans of \$600,000 outstanding at the beginning of the budget year. On the basis of the foregoing, the financing required to preserve a minimum cash balance of \$200,000 may be determined as follows:

Maximum cash deficiency (as above) . . . . .	\$ 169,205
Notes payable . . . . .	600,000
Interest on obligations already outstanding:	
Notes payable—\$600,000 at 6% . . . . .	36,000
First mortgage—\$500,000 at 5% . . . . .	25,000
Desired minimum balance . . . . .	200,000
Total . . . . .	<u>\$1,030,205</u>

This requirement may be met, with only a slight temporary impairment of the desired balance of \$200,000, by the provision of funds in the amount of \$1,000,000, as follows:

Renewal of notes payable . . . . .	\$ 600,000
Additional mortgage . . . . .	150,000
Sale of preferred stock . . . . .	250,000
Total . . . . .	<u>\$1,000,000</u>

This financing is scheduled on the basis of the negotiation of an additional mortgage on September 1st, and of the sale of preferred stock in August and September in the amounts of \$100,000 and \$150,000, respectively.

**Interest expense.** The estimated interest expense and the cash requirements therefor may now be computed. For the notes payable and the first mortgage, which run throughout the year, the expense and the cash requirements will be the same. The additional mortgage is assumed to be dated September 1st, and to bear  $5\frac{1}{2}\%$  interest payable semiannually. The accrued interest, therefore, to December 31 will be \$2,750, but no payment thereon will be due during the budget year. This situation is reflected as follows:

	Prepaid Interest on Notes Payable	Accrued Interest on Mortgage
Balances, December 31, 1939 . . . . .	\$ 3,000	\$ 8,333
Expense:		
Notes payable—\$600,000 at 6% . . . .	36,000	
First mortgage—\$500,000 at 5% . . . .		25,000
Additional mortgage—\$150,000 at 5½% from September 1st. . . . .		2,750
Total . . . . .	<u>\$36,000</u>	<u>\$27,750</u>
Total, or remainder* . . . . .	<u>\$33,000*</u>	<u>\$36,083</u>
Cash requirements:		
Notes payable . . . . .	36,000	
First mortgage . . . . .		25,000
Balances, December 31, 1940 . . . . .	<u>\$ 3,000</u>	<u>\$11,083</u>

The reduction of this to months and quarters as to both expense and cash requirements, is shown in Table 60.

Table 60

<b>THE NORMADALE COMPANY</b> <b>Computation of Interest Expense</b> <b>And Cash Requirements Therefor</b> <b>For the Year Ending December 31, 1940</b>				
	<u>Notes Payable</u>	<u>First Mortgage</u>	<u>Additional Mortgage</u>	<u>Total</u>
<b>Expense:</b>				
First quarter:				
January.....	\$ 3,000	\$ 2,083		\$ 5,083
February.....	3,000	2,083		5,083
March.....	3,000	2,084		5,084
Total.....	\$ 9,000	\$ 6,250		\$15,250
Second quarter.....	9,000	6,250		15,250
Third quarter.....	9,000	6,250	\$ 687	15,937
Fourth quarter.....	9,000	6,250	2,063	17,313
Total.....	<u>\$36,000</u>	<u>\$25,000</u>	<u>\$2,750</u>	<u>\$63,750</u>
<b>Cash requirements:</b>				
First quarter:				
January.....	\$ 3,000			\$ 3,000
February.....	3,000			3,000
March.....	3,000	\$12,500		15,500
Total....	\$ 9,000	\$12,500		\$21,500
Second quarter . . . .	9,000			9,000
Third quarter... . . .	9,000	12,500		21,500
Fourth quarter.....	9,000			9,000
Total.....	<u>\$36,000</u>	<u>\$25,000</u>		<u>\$61,000</u>

**The cash budget.** All cash requirements, including those for interest payments, and the method of financing the estimated cash deficits, have now been determined. A complete summary of the estimated cash receipts, disbursements and balances is shown in Table 61.

Table 61

**THE NORMADALE COMPANY**  
**Summary of Estimated Cash Receipts, Disbursements, and Balances**  
**For the Year Ending December 31, 1940**

Table	Total	First Quarter				Second Quarter	Third Quarter	Fourth Quarter
		January	February	March	Total			
Balance, beginning of period. . . . .	\$ 200,000	\$200,000	\$278,959	\$338,028	\$ 200,000	\$ 203,692	\$ 215,630	\$ 178,795
<b>Receipts:</b>								
Accounts receivable. . . . .	\$3,992,218	\$321,238	\$324,173	\$333,909	\$ 979,320	\$ 985,099	\$ 963,082	\$1,064,717
Mortgage. . . . .	150,000					100,000	150,000	
Preferred capital stock. . . . .	250,000							
Total receipts. . . . .	\$4,392,218	\$321,238	\$324,173	\$333,909	\$ 979,320	\$1,085,099	\$1,263,082	\$1,064,717
Total. . . . .	\$4,592,218	\$521,238	\$603,132	\$671,937	\$1,179,320	\$1,288,791	\$1,478,712	\$1,243,512
<b>Disbursements:</b>								
Labor. . . . .	\$ 553,037	\$ 35,674	\$ 39,382	\$ 43,041	\$ 118,097	\$ 136,858	\$ 138,261	\$ 159,821
Materials. . . . .	1,478,326	95,000	107,733	106,700	309,433	368,090	380,237	420,546
Insurance. . . . .	37,000	2,000	1,000	4,000	7,000	10,000	12,000	8,000
Local taxes. . . . .	46,800					38,000	8,800	
Federal income taxes. . . . .	50,000			12,500	12,500	12,500	12,500	12,500
Building expenses. . . . .	64,000		5,333	5,334	16,000	16,000	16,000	16,000
Manufacturing expenses. . . . .	287,000	21,794	22,704	23,114	67,612	70,054	68,725	80,909
Distribution expenses. . . . .	576,880	46,642	48,191	49,493	144,326	135,944	142,989	153,621
Administrative expenses. . . . .	295,000	22,836	22,761	23,563	69,160	71,715	73,885	80,240
Capital additions. . . . .	610,000	10,000	15,000	35,000	60,000	205,000	275,000	70,000
Dividends. . . . .	300,000			150,000	150,000		150,000	
Interest. . . . .	61,000	3,000	3,000	15,500	21,500	9,000	21,500	9,000
Total disbursements. . . . .	\$4,359,043	\$242,279	\$265,104	\$468,245	\$ 975,628	\$1,073,161	\$1,299,917	\$1,010,337
Balance, end of period. . . . .	\$ 233,175	\$278,959	\$338,028	\$203,692	\$ 203,692	\$ 215,630	\$ 178,795	\$ 233,175

## CHAPTER 13

### ESTIMATED FINANCIAL STATEMENTS

**Purpose of estimated financial statements.** The operating and cash budgets prepared in the preceding chapters serve as a means of controlling the activity to which each of them relates. In order to determine the estimated results of these budgets, it is desirable to prepare a statement of estimated profit and loss for the budget period and an estimated balance sheet at the end of the budget period.

The statements used in presenting the budget summaries to the management should follow the forms used by the accounting department in accounting for actual results. Such summaries are more readily understood, and the use of the standard form facilitates the comparisons with prior periods and subsequent comparisons with actual results.

The statements illustrated in this chapter are for the entire year; the methods used for assembling these statements could be applied to the preparation of similar statements for each month or quarter.

**Statement of estimated profit and loss.** The process of preparing the statement of estimated profit and loss, illustrated in Table 62, consists principally of assembling the estimates prepared in preceding chapters.

Most of the amounts shown in Table 62 can be found in the preceding tables. The amounts shown as Other Expenses are totals of discounts on sales and interest expense, which are shown in Tables 50 and 60, and which are combined in Table 63 on page 127.

Table 62

**THE NORMADALE COMPANY**  
**Statement of Estimated Profit and Loss by Periods**  
**For the Year Ending December 31, 1940**

Item	First Quarter			Second Quarter	Third Quarter	Fourth Quarter	Total
	January	February	March				
Sales (Table 21).....	\$321,444	\$378,770	\$366,144	\$1,066,358	\$928,542	\$1,193,277	\$4,260,150
Cost of goods sold (Table 41).....	205,402	239,748	233,037	678,187	597,614	754,064	2,720,677
Gross profit.....	\$116,042	\$139,022	\$133,107	\$388,171	\$330,928	\$439,213	\$1,539,473
Operating expenses:							
Distribution expenses (Table 47).....	\$ 46,642	\$ 48,191	\$ 49,493	\$ 144,326	\$135,944	\$ 142,989	\$ 576,880
Administrative expenses (Table 48)...	31,181	31,966	32,582	95,729	96,218	100,539	401,200
Total.....	\$ 77,823	\$ 80,157	\$ 82,075	\$ 240,055	\$232,162	\$ 243,528	\$ 978,080
Net profit from operations.....	\$ 38,219	\$ 58,865	\$ 51,032	\$ 148,116	\$ 98,766	\$ 137,633	\$ 561,393
Add other income:							
Discount on purchases (Table 51). ....	5,000	5,670	5,616	16,286	19,373	20,014	77,807
Total income.....	\$ 43,219	\$ 64,535	\$ 56,648	\$ 164,402	\$118,139	\$ 157,647	\$ 639,200
Deduct other expenses:							
(Table 63).....	11,639	11,699	11,898	35,236	35,592	39,042	145,224
Net profit before provision for income tax	\$ 31,580	\$ 52,836	\$ 44,750	\$ 129,166	\$ 82,785	\$ 122,055	\$ 493,976
Provision for income tax.....	3,790	6,340	5,370	15,500	9,934	14,647	59,277
Net profit.....	\$ 27,790	\$ 46,496	\$ 39,380	\$ 113,666	\$ 72,851	\$ 107,408	\$ 434,699

**THE NORMADALE COMPANY**  
**Computation of Other Expenses**  
**For the Year Ending December 31, 1940**

Table 63

	Discount on Sales (Table 50)	Interest Expense (Table 60)	Total
First quarter:			
January.....	\$ 6,556	\$ 5,083	\$ 11,639
February.....	6,616	5,083	11,699
March.....	6,814	5,084	11,898
Total.....	\$19,986	\$15,250	\$ 35,236
Second quarter.....	20,104	15,250	35,354
Third quarter.....	19,655	15,937	35,592
Fourth quarter.....	21,729	17,313	39,042
Total.....	<u>\$81,474</u>	<u>\$63,750</u>	<u>\$145,224</u>

The federal income tax was not computed in the preceding chapters. The net profit before income tax provision, computed in Table 62, is \$493,976. A tax rate of 12 per cent is arbitrarily used to estimate the federal income tax.

**Working papers.** The statement of estimated profit and loss was assembled directly from the operating budgets. To prepare the estimated balance sheet, it is necessary to apply the operating and cash budgets to the balance sheet at the beginning of the period; this can be done most easily by using the working papers illustrated in Table 64.

The first two columns show the balance sheet at the beginning of the budget period.

The second pair of columns contains debits and credits (to balance sheet and operating accounts) reflecting the estimates shown in the operating and cash budgets. These debits and credits were posted to the working papers from entries set up in journal form as a convenient mode of summarizing the budgets. (See page 130.)

The third pair of columns contains the debit and credit balances of the profit-and-loss accounts and serves as a proof of the statement of estimated profit and loss already prepared.

The fourth pair of columns contains the estimated debit and credit balances of the balance sheet accounts at the end of the budget year.



Table 64

**THE NORMADALE COMPANY**  
**Estimated Balance Sheet Working Papers**  
**For the Year Ending December 31, 1940**

Balance Sheet December 31, 1939 (Table 17)	Entries Reflecting Operating and Cash Budgets		Estimated Profit and Loss	Estimated Balance Sheet December 31, 1940
	Debit	Credit		
Cash.....	\$ 200,000	\$ 553,037(3) 287,000(4) 576,880(5) 295,000(6) 64,000(7) 1,478,326(14) 133,800(15) 61,000(16) 300,000(17) 610,000(18) 4,073,692(13)		\$ 233,175
Accounts receivable.....	800,000	4,260,150(1)		986,458
Reserve for bad debts.....	\$ 80,000			\$ 143,900
Inventory of materials.....	238,000	1,610,357(2)		290,000
Inventory of work in process...	125,000	2,840,394(9)		125,000
Inventory of finished goods.....	570,218	2,840,394(10)		689,935
Unexpired insurance .....	12,000			13,500
Prepaid interest.....	3,000	37,000(15)		
Land.....	225,000	36,000(16)		3,000
Buildings.....	2,500,000	75,000(18)		300,000
Equipment.....	2,460,000	335,000(18)		2,835,000
		200,000(18)		2,660,000
Reserve for depreciation.....		240,000(4)		
		16,000(6)		
		80,000(7)		
	1,200,000			1,536,000

Table 64—Continued

	Balance Sheet December 31, 1939 (Table 17)		Entries Reflecting Operating and Cash Budgets		Estimated Profit and Loss		Estimated Balance Sheet December 31, 1940	
	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit
Notes payable.....		\$ 600,000					\$600,000	
Accounts payable.....		100,000	\$1,556,133(14)	\$1,610,357(2)			154,224	
				8,800(6)				40,000
Accrued local taxes.....		38,000	46,800(15)	40,000(7)				11,083
Accrued interest... ..		8,333	25,000(16)	27,750(8)				59,277
Accrued federal income taxes. .		50,000	50,000(15)	59,277(12)				650,000
Mortgage payable. ....		500,000		150,000(19)			1,750,000	
Preferred capital stock . . . . .		1,500,000		250,000(19)			2,500,000	
Common capital stock . . . . .		2,500,000						256,885
Surplus.....		556,885	300,000(17)			\$4,260,150		
Sales.....				4,260,150(1)				
Labor.....			553,037(3)	553,037(9)				
Manufacturing expenses.....			729,000(4)	729,000(9)				
				180,000(4)				
				16,000(6)				
Rent applied . . . . .			196,000(7)					
Distribution expenses.....			576,880(5)		\$ 576,880			
Administrative expenses . . . . .			401,200(6)		401,200			
Interest expense... ..			63,750(8)		63,750			
Cost of goods sold. ....			2,720,677(11)		2,720,677			
Provisions for federal income tax			59,277(12)		59,277			
Discount on sales . . . . .			81,474(13)		81,474			
Discount on purchases.....								
Profit for period.....				77,807(14)	77,807			
					434,699			434,699
	<u>\$7,133,218</u>	<u>\$7,133,218</u>	<u>\$23,985,741</u>	<u>\$23,985,741</u>	<u>\$4,337,957</u>	<u>\$4,337,957</u>	<u>\$8,136,068</u>	<u>\$8,136,068</u>

**Entries applied to the working papers.** Following are the debits and credits which were applied in the working papers to show the effect of the various budgets for the year.

(1)		
Accounts receivable.....	\$4,260,150	
Sales .....		\$4,260,150
Sales budget (Table 21)		
(2)		
Inventory of materials.....	1,610,357	
Accounts payable.....		1,610,357
Purchase budget (Table 29)		
(3)		
Labor.....	553,037	
Cash.....		553,037
Labor budget (Table 32)		
(4)		
Manufacturing expenses .....	729,000	
Cash.....		287,000
Reserve for depreciation.....		240,000
Rent applied.....		180,000
Unexpired insurance.....		22,000
Manufacturing expense budget analysis (Table 54)		
(5)		
Distribution expenses.....	576,880	
Cash.....		576,880
Distribution expense budget analysis (Table 55)		
(6)		
Administrative expenses.....	401,200	
Cash.....		295,000
Reserve for depreciation.....		16,000
Reserve for bad debts.....		63,900
Rent applied .....		16,000
Unexpired insurance.....		1,500
Accrued local taxes.....		8,800
Administrative expense budget analysis (Table 56)		
(7)		
Rent applied.....	196,000	
Cash.....		64,000
Reserve for depreciation .....		80,000
Accrued local taxes.....		40,000
Unexpired insurance.....		12,000
Building expense budget analysis (Table 53)		
(8)		
Interest expense.....	63,750	
Prepaid interest.....		36,000
Accrued interest.....		27,750
Interest expense budget (Table 60)		

(9)		
Inventory of work in process. . . . .	\$2,840,394	
Inventory of materials. . . . .		\$1,558,357
Labor. . . . .		553,037
Manufacturing expenses . . . . .		729,000
Cost of goods put in process of manufacture (Table 41)		
(10)		
Inventory of finished goods. . . . .	2,840,394	
Inventory of work in process. . . . .		2,840,394
Cost of goods manufactured (Table 41)		
(11)		
Cost of goods sold. . . . .	2,720,677	
Inventory of finished goods. . . . .		2,720,677
Cost of goods sold (Table 41)		
(12)		
Provision for federal income tax. . . . .	59,277	
Accrued federal income tax. . . . .		59,277
Accrued federal income tax (Table 62)		
(13)		
Cash. . . . .	3,992,218	
Discount on sales. . . . .	81,474	
Accounts receivable . . . . .		4,073,692
Estimated collections from accounts receivable (Table 50)		
(14)		
Accounts payable. . . . .	1,556,133	
Cash. . . . .		1,478,326
Discount on purchases . . . . .		77,807
Estimated payments on accounts payable (Table 51)		
(15)		
Unexpired insurance. . . . .	37,000	
Accrued local taxes . . . . .	46,800	
Accrued federal income taxes. . . . .	50,000	
Cash. . . . .		133,800
Estimated payments for insurance and taxes (Table 52)		
(16)		
Prepaid interest. . . . .	36,000	
Accrued interest. . . . .	25,000	
Cash. . . . .		61,000
Estimated payments for interest (Table 60)		
(17)		
Surplus. . . . .	300,000	
Cash. . . . .		300,000
Estimated dividend payments (Table 61)		

(18)			
Land.. .. .	\$	75,000	
Buildings .....		335,000	
Equipment.....		200,000	
Cash. . . . .			\$ 610,000
Estimated cash disbursements for additions to capital assets (Table 57)			

(19)			
Cash.....	400,000		
Mortgage payable.....		150,000	
Preferred capital stock.....		250,000	
Estimated cash receipts from sales of mortgage and preferred capital stock (Table 61)			

**The estimated balance sheet.** The estimated balance sheet at the end of the budget period, prepared from the working papers, indicates the expected financial condition of the company as of that date. The condition so indicated is one of the general tests of the proposed operating and financial programs. If the balance sheet indicates an unsatisfactory situation, a review of the budget estimates may be desirable to determine possible revisions to produce more nearly satisfactory results.

This study is facilitated by a comparison of the estimated balance sheet with the balance sheet at the beginning of the period. The differences between these two balance sheets form the basis of analyses in detail of the effect of the budget estimates. Such a comparison is made in Table 65.

Estimated balance sheets at the end of each budget period may be prepared by the same method used to prepare the estimated balance sheet at the end of the year. However, the manufacturing expense in entry number nine in the worksheet would be credited for the amount of the manufacturing expenses applied. The difference in the manufacturing expense account would show the excess or deficiency between the expenses incurred and the amount applied to production, and would appear in the balance sheet as underabsorbed or overabsorbed manufacturing expenses, as computed in Table 38.

Table 65

**THE NORMADALE COMPANY**  
**Comparison of Balance Sheets**  
**December 31, 1940 (Estimated) and 1939 (Actual)**

	December 31, 1940 (Table 64)	December 31, 1939	Increase
<b>Assets</b>			
Current assets:			
Cash .....	\$ 233,175	\$ 200,000	\$ 33,175
Accounts receivable .....	\$ 986,458	\$ 800,000	\$186,458
Less reserve for bad debts .....	143,900	80,000	63,900
Accounts receivable—net .....	<u>\$ 842,558</u>	<u>\$ 720,000</u>	<u>\$122,558</u>
Inventories:			
Materials .....	\$ 290,000	\$ 238,000	\$ 52,000
Work in process .....	125,000	125,000	
Finished goods .....	689,935	570,218	119,717
Total inventories .....	<u>\$1,104,935</u>	<u>\$ 933,218</u>	<u>\$171,717</u>
Total current assets .....	<u>\$2,180,668</u>	<u>\$1,853,218</u>	<u>\$327,450</u>
Prepaid expenses:			
Unexpired insurance .....	\$ 13,500	\$ 12,000	\$ 1,500
Prepaid interest .....	3,000	3,000	
Total prepaid expenses .....	<u>\$ 16,500</u>	<u>\$ 15,000</u>	<u>\$ 1,500</u>
Fixed assets:			
Land .....	\$ 300,000	\$ 225,000	\$ 75,000
Buildings .....	2,835,000	2,500,000	335,000
Equipment .....	2,660,000	2,460,000	200,000
Total .....	<u>\$5,795,000</u>	<u>\$5,185,000</u>	<u>\$610,000</u>
Less reserve for depreciation .....	1,536,000	1,200,000	336,000
Net fixed assets .....	<u>\$4,259,000</u>	<u>\$3,985,000</u>	<u>\$274,000</u>
Total assets .....	<u>\$6,456,168</u>	<u>\$5,853,218</u>	<u>\$602,950</u>
<b>Liabilities and Net Worth</b>			
Current liabilities:			
Notes payable .....	\$ 600,000	\$ 600,000	
Accounts payable .....	<u>\$ 154,224</u>	<u>\$ 100,000</u>	<u>\$ 54,224</u>
Accruals:			
Local taxes .....	\$ 40,000	\$ 38,000	\$ 2,000
Interest .....	11,083	8,333	2,750
Federal income taxes .....	59,277	50,000	9,277
Total accruals .....	<u>\$ 110,360</u>	<u>\$ 96,333</u>	<u>\$ 14,027</u>
Total current liabilities .....	<u>\$ 864,584</u>	<u>\$ 796,333</u>	<u>\$ 68,251</u>
Mortgages payable .....	<u>\$ 650,000</u>	<u>\$ 500,000</u>	<u>\$150,000</u>
Net worth:			
Preferred capital stock .....	\$1,750,000	\$1,500,000	\$250,000
Common capital stock .....	2,500,000	2,500,000	
Surplus .....	691,584	556,885	134,699
Total net worth .....	<u>\$4,941,584</u>	<u>\$4,556,885</u>	<u>\$384,699</u>
Total liabilities and net worth .....	<u>\$6,456,168</u>	<u>\$5,853,218</u>	<u>\$602,950</u>

The comparative balance sheet may be supplemented by a statement of application of funds.

Table 66

**THE NORMADALE COMPANY**  
Statement of Estimated Application of Funds  
For the Year Ending December 31, 1940

Estimated funds provided:		
Net profits to surplus (Table 62).....	\$434,699	
Add charges to profits not requiring funds:		
Depreciation.....	<u>336,000</u>	
Total funds provided by profits.....		\$ 770,699
Sale of preferred capital stock.....		250,000
Sale of mortgage notes.....		<u>150,000</u>
Total estimated funds provided.....		<u>\$1,170,699</u>
Estimated funds applied:		
To additions to capital assets:		
Land.....	\$ 75,000	
Buildings.....	335,000	
Equipment.....	<u>200,000</u>	\$ 610,000
To payment of cash dividends.....		300,000
To increase in prepaid expenses.....		1,500
Increase in working capital.....		<u>259,199</u>
Total estimated funds applied.....		<u>\$1,170,699</u>

The increase in working capital, as shown in the foregoing statement, is somewhat further detailed below:

	December 31, 1940	December 31, 1939	Increase
Total current assets.....	\$2,180,668	\$1,853,218	\$327,450
Total current liabilities.....	<u>864,584</u>	<u>796,333</u>	<u>68,251</u>
Working capital.....	<u>\$1,316,084</u>	<u>\$1,056,885</u>	<u>\$259,199</u>
Working capital ratio.....	2.52 to 1	2.33 to 1	

The ratio of estimated net profit to the average net worth for the budget year is computed as follows:

Net worth (Table 65):	
December 31, 1939.....	\$4,556,835
December 31, 1940.....	<u>4,941,581</u>
Total.....	<u>\$9,498,416</u>
Average net worth.....	<u>\$4,749,208</u>
Net profit (Table 62).....	\$ 434,699
Ratio of net profit to average net worth.....	<u>9.15%</u>

## CHAPTER 14

### COMPARISON OF PERFORMANCE WITH THE BUDGET

**Means of enforcing the budget.** The preceding chapters dealt with the preparation of the budget. This chapter and Chapter 15 explain the procedure of comparing the performance with the budget and analyzing the variations. The comparison serves as a means of measuring the effectiveness of the performance; and the analysis of the variations aids in locating responsibility for differences between results attained and budget estimates.

In this and the succeeding chapter there are presented comparisons of the performance of The Normadale Company for the three months ended March 31, 1940, with the budget for that period. This chapter deals with profit-and-loss comparisons and analyses; Chapter 15 deals with the balance sheet.



**Outline of this chapter.** The profit-and-loss comparisons and analyses in this chapter are divided into three parts, in order to present principal summaries first and details later. The contents of the three parts of the chapter are outlined below:

### Part 1

#### *Table*

67	Comparative profit-and-loss statement:
68	Sales
69	Cost of goods sold
70	Gross profit
71	Distribution expenses
72	Administrative expenses
73	Building expenses
74	Summary of differences in sales, costs of sales, and expenses

### Part 2

75	Unit costs of goods sold
76	Unit costs of current production:
77	Materials
78	Labor
79	Manufacturing expense absorbed
80	Manufacturing expenses incurred
81	Summary of differences in costs of manufacturing

### Part 3

	Differences in materials used:
82	Total cost
83	Quantity
84	Unit cost

## Part 1

The following is a condensed comparative statement of profit and loss for the three months ended March 31, 1940.

Table 67

**THE NORMADALE COMPANY**  
**Profit and Loss**  
**Comparison of Performance with the Budget**  
**For the Three Months Ended March 31, 1940**

	Actual	Budget	Over- Under*	Analysis in Table
Sales.....	\$1,116,000	\$1,066,358	\$49,642	68
Cost of goods sold.....	689,224	678,187	11,037	69
Gross profit.....	<u>\$ 426,776</u>	<u>\$ 388,171</u>	<u>\$38,605</u>	70
Operating expenses:				
Distribution expenses.....	\$ 149,400	\$ 144,326	\$ 5,074	71
Administrative expenses....	99,075	95,729	3,346	72
Total.....	<u>\$ 248,475</u>	<u>\$ 240,055</u>	<u>\$ 8,420</u>	
Net profit from operations....	\$ 178,301	\$ 148,116	\$30,185	
Add other income:				
Discount on purchases.....	12,000	16,286	4,286*	
Building expenses overab-				
sorbed.....	1,500		1,500	73
Total income.....	<u>\$ 191,801</u>	<u>\$ 164,402</u>	<u>\$27,399</u>	
Deduct other expenses:				
Discount on sales.....	\$ 18,000	\$ 19,986	\$ 1,986*	
Interest expense.....	15,250	15,250		
Total other expenses...	<u>\$ 33,250</u>	<u>\$ 35,236</u>	<u>\$ 1,986*</u>	
Net income before provision for income tax.....	\$ 158,551	\$ 129,166	\$29,385	
Provision for income tax.....	19,026	15,500	3,526	
Net income.....	<u>\$ 139,525</u>	<u>\$ 113,666</u>	<u>\$25,859</u>	74

**Sales.** The \$49,642 difference in sales shown in Table 67 is detailed by products in Table 68. The differences in sales are the result of two causes:

Variations between quantities budgeted to be sold, and quantities actually sold. The effect of these variations is determined by multiplying the quantity variations by the budgeted selling prices.

Variations between budgeted unit selling prices and actual unit selling prices. The effect of these variations is determined by multiplying the quantities actually sold by the variations in selling prices.

Table 68

## THE NORMADALE COMPANY

## Sales

Comparison of Performance with the Budget  
For the Three Months Ended March 31, 1940

	Product			Total
	A	B	C	
Sales:				
Actual (Table 67).....	\$234,000	\$702,000	\$180,000	\$1,116,000
Budget (Table 21).....	210,408	675,950	180,000	1,066,358
Over-under*.....	<u>\$ 23,592</u>	<u>\$ 26,050</u>		<u>\$ 49,642</u>
Causes of differences:				
Variation in quantity:				
Actual.....(1)	19,500	26,000	4,000	
Budget (Table 21).....	17,534	27,038	3,600	
Over-under*.....(2)	<u>1,966</u>	<u>1,038*</u>	<u>400</u>	
Variation in unit selling price:				
Actual.....	\$ 12.00	\$ 27.00	\$ 45.00	
Budget (Table 21).....(3)	12.00	25.00	50.00	
Over-under*.....(4)	<u></u>	<u>\$ 2.00</u>	<u>\$ 5.00*</u>	
Difference in sales caused by:				
Variation in quantity..(2 x 3)	\$ 23,592	\$ 25,950*	\$ 20,000	\$ 17,642
Variation in unit price..(1 x 4)		52,000	20,000*	32,000
Total.....	<u>\$ 23,592</u>	<u>\$ 26,050</u>		<u>\$ 49,642</u>

**Cost of goods sold.** The \$11,037 difference in cost of goods sold, shown in Table 67, is detailed by products in Table 69. This table also shows, as to each product, the portion of the difference caused by variations, between the budget and performance, in quantities sold and unit costs.

Table 69

THE NORMADALE COMPANY				
Cost of Goods Sold				
Comparison of Performance with the Budget				
For the Three Months Ended March 31, 1940				
	Product			Total
	A	B	C	
Cost of goods sold:				
Actual (Table 67).....	\$162,762	\$406,615	\$119,847	\$689,224
Budget (Table 42).....	147,057	422,712	108,418	678,187
Over-under*.....	<u>\$ 15,705</u>	<u>\$ 16,097*</u>	<u>\$ 11,429</u>	<u>\$ 11,037</u>
Causes of differences:				
Variation in quantity:				
Actual.....(1)	19,500	26,000	4,000	
Budget (Table 21).....	17,534	27,038	3,600	
Over-under*.....(2)	<u>1,966</u>	<u>1,038*</u>	<u>400</u>	
Variation in unit cost:				
Actual.....	\$ 8.347	\$ 15.639	\$ 29.962	
Budget (Table 42).....(3)	8.387	15.634	30.117	
Over-under*.....(4)	<u>\$ .040*</u>	<u>\$ .005</u>	<u>\$ .155*</u>	
Difference in cost of goods sold				
caused by:				
Variation in quantity...(2 x 3)	\$ 16,489	\$ 16,228*	\$ 12,046	\$ 12,307
Variation in unit cost...(1 x 4)	784*	131	617*	1,270*
Total.....	<u>\$ 15,705</u>	<u>\$ 16,097*</u>	<u>\$ 11,429</u>	<u>\$ 11,037</u>

Additional details concerning the differences in unit-cost price are presented in Part 2 of this chapter.

**Gross profit.** A comparison of the differences in gross profit by products, and the analysis of the variations, are shown in Table 70.

Table 70

THE NORMADALE COMPANY				
Gross Profit				
Comparison of Performance with the Budget				
For the Three Months Ended March 31, 1940				
	Product			Total
	A	B	C	
Gross Profit:				
Actual.....	\$71,238	\$295,385	\$60,153	\$426,776
Budget.....	63,351	253,238	71,582	388,171
Over-under*.....	<u>\$ 7,887</u>	<u>\$ 42,147</u>	<u>\$11,429*</u>	<u>\$ 38,605</u>
Causes of differences:				
Variation in quantity:				
Actual.....(1)	19,500	26,000	4,000	
Budget.....	17,534	27,038	3,600	
Over-under*.....(2)	<u>1,966</u>	<u>1,038*</u>	<u>400</u>	
Variation in unit gross profit:				
Actual.....	\$ 3.653	\$ 11.361	\$15.038	
Budget.....(3)	3.613	9.366	19.883	
Over-under*.....(4)	<u>\$ .040</u>	<u>\$ 1.995</u>	<u>\$ 4.845*</u>	
Difference in gross profit caused by:				
Variation in quantity.....(2 x 3)	\$ 7,103	\$ 9,722*	\$ 7,954	\$ 5,335
Variation in unit rate (a) ..(1 x 4)	784	51,869	19,383*	33,270
Total.....	<u>\$ 7,887</u>	<u>\$ 42,147</u>	<u>\$11,429*</u>	<u>\$ 38,605</u>

(a) Small adjustments were necessary because unit rates were not computed beyond three decimal places.

**Operating expenses.** The comparison of the actual operating expenses with the budget is shown in Tables 71 and 72.

Table 71

THE NORMADALE COMPANY			
Distribution Expenses			
Comparison of Performance with the Budget			
For the Three Months Ended March 31, 1940			
Item	Actual	Budget (Table 47)	Over- Under*
Sales managers' salaries.....	\$ 7,000	\$ 7,000	\$ —
Salesmen's salaries.....	35,000	36,000	1,000*
Sales clerical expense.....	3,900	3,750	150
Rent of sales office.....	4,500	4,500	—
Traveling expenses.....	9,000	10,800	1,800*
Commissions and bonuses.....	25,000	22,532	2,468
Delivery expenses.....	21,000	24,086	3,086*
Advertising.....	44,000	35,658	8,342
Total.....	<u>\$149,400</u>	<u>\$144,326</u>	<u>\$5,074</u>

Table 72

THE NORMADALE COMPANY			
Administrative Expenses			
Comparison of Performance with the Budget			
For the Three Months Ended March 31, 1940			
Item	Actual	Budget (Table 48)	Over- Under*
Executive salaries.....	\$32,500	\$32,500	\$ —
Office rent.....	4,000	4,000	—
Depreciation of office equipment....	4,000	4,000	—
Insurance.....	375	375	—
Taxes.....	2,200	2,200	—
Office salaries.....	23,200	21,840	1,360
Office supplies.....	4,200	3,780	420
Bad debts.....	16,770	15,994	776
Postage.....	1,000	945	55
Telephone and telegraph.....	1,100	1,260	160*
Credit and collection expense....	3,500	3,360	140
Professional services.....	3,700	3,200	500
Unclassified expense.....	1,750	1,500	250
Repairs to office equipment.....	300	250	50
Light.....	480	525	45*
Total.....	<u>\$99,075</u>	<u>\$95,729</u>	<u>\$3,346</u>

**Other income and other expenses.** The difference in discount on purchases amounted to \$4,286. An investigation discloses that purchases of raw materials are being made from new suppliers who do not allow as large a rate of discount as was allowed by the previous suppliers.

The actual building expenses were \$1,500 less than budgeted. However, the budgeted amounts were charged to the various expense classifications as rent, with the result that the overabsorbed building expenses amounted to \$1,500. The comparison of the actual with the budgeted items appears in Table 73.

Table 73

THE NORMADALE COMPANY			
Building Expenses			
Comparison of Performance with the Budget			
For the Three Months Ended March 31, 1940			
<u>Item</u>	<u>Actual</u>	<u>Budget (Table 33)</u>	<u>Over- Under*</u>
Real estate taxes.....	\$ 9,500	\$10,000	\$ 500*
Depreciation.....	20,000	20,000	
Insurance.....	3,000	3,000	
Repairs and upkeep.....	15,000	16,000	1,000*
Total.....	<u>\$47,500</u>	<u>\$49,000</u>	<u>\$1,500*</u>

The difference in discount on sales amounted to \$1,986 and was found to be due to (a) a decrease in the amount of collections and (b) fewer collections on accounts receivable within the discount period.

**Summary of causes of difference in net profit.** The preceding analyses are summarized in Table 74.

Table 74

**THE NORMADALE COMPANY**  
**Summary of Causes of Difference in Net Profit**  
**For the Three Months Ended March 31, 1940**

Gross profit in excess of budget:			
Due to difference in:			
Unit selling price (Table 68).....	\$32,000		
Unit cost of goods sold (Table 69).....	<u>1,270</u>		
Unit gross profit rate (Table 70).....	\$33,270		
Due to increase in quantity sold (Table 70) ..	<u>5,335</u>	\$38,605	
Operating expenses in excess of budget:			
Distribution expenses (Table 71).....	\$ 5,074		
Administrative expenses (Table 72)....	<u>3,346</u>	<u>8,420</u>	
Net profit from operations in excess of budget..		\$30,185	
Other income and other expense variations from budget:			
Discount on purchases less than budget.....	\$ 4,286		
Building expenses less than budget (Table 73) \$1,500			
Discount on sales less than budget.....	<u>1,986</u>	<u>3,486</u>	<u>800</u>
Net profit before provision for income tax, in excess of budget .....		\$29,385	
Provision for income tax in excess of budget....		<u>3,526</u>	
Net profit in excess of budget.....		<u>\$25,859</u>	

## Part 2

**Unit cost of goods sold.** Table 69 showed the extent to which quantity variations and unit-cost variations caused differences between the budgeted and the actual cost of goods sold. What caused the differences in unit costs?

The unit cost is an average of unit costs of goods in the opening inventory and goods currently produced, weighted according to the relative quantities of goods sold from each source. Hence the actual average unit cost may differ from the budget estimates as a result of either or both of two causes.

- (1) The actual unit cost of current production may vary from the budget estimate, or
- (2) The quantities actually sold from inventory or from current production may vary from the estimates.

Table 75 analyzes these two variations and thus accounts for the differences between estimated and actual unit costs of goods sold.



Table 75

## THE NORMADALE COMPANY

## Unit Costs of Goods Sold

Comparison of Performance with the Budget  
For the Three Months Ended March 31, 1940

	Actual		Budget (Table 42)		Difference— Over-Under*	
	Quantity	Cost	Quantity	Cost	Quantity	Unit Cost
<b>Product A:</b>						
Inventory, December 31, 1939...	16,000	\$134,192	16,000	\$134,192		
Current production.....	20,000	163,291	20,300	170,256		
Total.....	36,000	\$297,483	36,300	\$304,448		
Inventory, March 31, 1940.....	16,500	134,721	18,766	157,391		
Sold.....	19,500	\$162,762	17,534	\$147,057		
Source of sales:						
Opening inventory.....	16,000	\$134,192	16,000	\$134,192	\$ 8.387	
Current production.....	3,500	28,570	1,534	12,865	8.387	1,966
Total.....	19,500	\$162,762	17,534	\$147,057	8.387	\$ .222* .040*
<b>Product B:</b>						
Inventory, December 31, 1939...	25,000	\$390,850	25,000	\$390,850		
Current production.....	24,000	378,316	22,230	347,544		
Total.....	49,000	\$769,166	47,230	\$738,394		
Inventory, March 31, 1940.....	23,000	362,551	20,192	315,682		
Sold.....	26,000	\$406,615	27,038	\$422,712		
Source of sales:						
Opening inventory.....	25,000	\$390,850	25,000	\$390,850	\$15.634	
Current production.....	1,000	15,765	2,038	31,862	15.634	1,038*
Total.....	26,000	\$406,615	27,038	\$422,712	15.634	\$ .129 .005
<b>Product C:</b>						
Inventory, December 31, 1939...	1,500	\$ 45,176	1,500	\$ 45,176		
Current production.....	3,200	95,579	3,080	92,756		
Total.....	4,700	\$140,755	4,580	\$137,932		
Inventory, March 31, 1940. ....	700	20,908	980	29,514		
Sold.....	4,000	\$119,847	3,600	\$108,418		
Source of sales:						
Opening inventory.....	1,500	\$ 45,176	1,500	\$ 45,176	\$30.117	
Current production.....	2,500	74,671	2,100	63,242	30.117	400
Total.....	4,000	\$119,847	3,600	\$108,418	30.117	\$ .249* .155*

**Comparison of unit costs of current production.** Table 75 shows that performance and the budget were in agreement to the extent that all goods in the opening inventory were sold during the current three-months period. The differences between the budgeted and actual cost of goods sold was due to variations between performance and the budget with respect to (1) quantities sold from current production, and (2) unit costs of current production.

The cost of a unit of finished product is the sum of the unit costs of material, labor, and manufacturing expense. Table 76 shows the actual and budget unit costs of material, labor, and expense entering into the current production of the company's three products.

Table 76

THE NORMADALE COMPANY					
Unit Costs of Current Production					
Comparison of Performance with the Budget					
For the Three Months Ended March 31, 1940					
	Total		Unit Cost		
	Actual	Budget	Actual	Budget	Over-Under*
Product A:					
Quantity.....	20,000	20,300			
Cost:					
Material.....	\$ 96,453	\$ 99,675	\$ 4.823	\$ 4.910	\$ .087*
Labor.....	27,300	30,450	1.365	1.500	.135*
Expense.....	39,538	40,131	1.977	1.977	
Total.....	<u>\$163,291</u>	<u>\$170,256</u>	<u>\$ 8.165</u>	<u>\$ 8.387</u>	<u>\$ .222*</u>
Product B:					
Quantity.....	24,000	22,230			
Cost:					
Material.....	\$184,498	\$180,061	\$ 7.687	\$ 8.100	\$ .413*
Labor.....	91,000	72,247	3.792	3.250	.542
Expense.....	102,818	95,236	4.284	4.284	
Total.....	<u>\$378,316</u>	<u>\$347,544</u>	<u>\$15.763</u>	<u>\$15.634</u>	<u>\$ .129</u>
Product C:					
Quantity.....	3,200	3,080			
Cost:					
Material.....	\$ 53,485	\$ 57,053	\$16.713	\$18.525	\$1.812*
Labor.....	21,000	15,400	6.563	5.000	1.563
Expense.....	21,094	20,303	6.592	6.592	
Total.....	<u>\$ 95,579</u>	<u>\$ 92,756</u>	<u>\$29.868</u>	<u>\$30.117</u>	<u>\$ .249*</u>

The causes of the differences in the costs of material, labor, and expense per unit of current production are analyzed in the following tables.

Table 77 shows an analysis of the cost of materials used in the manufacture of the company's three products.

Table 77

THE NORMADALE COMPANY				
Materials				
Comparison of Performance with the Budget				
For the Three Months Ended March 31, 1940				
	Product			Total
	A	B	C	
Materials used:				
Actual. . . . .	\$96,453	\$184,498	\$53,485	\$334,436
Budget (Table 36) . . . . .	99,675	180,061	57,053	336,789
Over-under* . . . . .	<u>\$ 3,222*</u>	<u>\$ 4,437</u>	<u>\$ 3,568*</u>	<u>\$ 2,353*</u>
Causes of differences:				
Variation in quantity of production:				
Actual . . . . . (1)	20,000	24,000	3,200	
Budget . . . . .	20,300	22,230	3,080	
Over-under* . . . . . (2)	<u>300*</u>	<u>1,770</u>	<u>120</u>	
Variation in unit cost:				
Actual . . . . .	\$ 4.823	\$ 7.687	\$16.713	
Budget . . . . . (3)	4.910	8.100	18.525	
Over-under* . . . . . (4)	<u>\$ .087*</u>	<u>\$ .413*</u>	<u>\$ 1.812*</u>	
Differences in materials caused by:				
Variation in quantity of production. . . . . (2 x 3)	\$ 1,473*	\$ 14,337	\$ 2,223	\$ 15,087
Variation in unit cost. . . (1 x 4)	1,749*	9,900*	5,791*	17,440*
Total . . . . .	<u>\$ 3,222*</u>	<u>\$ 4,437</u>	<u>\$ 3,568*</u>	<u>\$ 2,353*</u>

*Note.* Small adjustments were necessary because unit cost rates were carried to only three decimal places.

The analysis of the differences in the cost of each of the seven materials used in the company's three products is presented in Part 3 of this chapter.

The comparison and analysis of the difference in labor cost is shown in Table 78.

Table 78

THE NORMADALE COMPANY				
Labor				
Comparison of Performance with the Budget				
For the Three Months Ended March 31, 1940				
	Product			Total
	A	B	C	
Labor cost:				
Actual.....	\$27,300	\$91,000	\$21,000	\$139,300
Budget (Table 32).....	30,450	72,247	15,400	118,097
Over-under*.....	\$ 3,150*	\$18,753	\$ 5,600	\$ 21,203
Causes of differences:				
Variation in quantity of production:				
Actual..... (1)	20,000	24,000	3,200	
Budget.....	20,300	22,230	3,080	
Over-under*..... (2)	300*	1,770	120	
Variation in unit cost:				
Actual.....	\$ 1.365	\$ 3.792	\$ 6.563	
Budget (Table 31)..... (3)	1.500	3.250	5.000	
Over-under*..... (4)	\$ .135*	\$ .542	\$ 1.563	
Differences in labor caused by:				
Variation in quantity of production..... (2 x 3)	\$ 450*	\$ 5,753	\$ 600	\$ 5,903
Variation in unit cost... (1 x 4)	2,700*	13,000	5,000	15,300
Total.....	\$ 3,150*	\$18,753	\$ 5,600	\$ 21,203

**Manufacturing expenses.** The budgeted manufacturing expense rates (Table 37) were used in prorating manufacturing expenses to the cost of goods manufactured. Therefore, the difference between the manufacturing expense absorbed in production for the three months ended March 31, 1940 and the budget for the same period is due to the variation in the quantity of production, as shown in Table 79.

Table 79

<b>THE NORMADALE COMPANY</b> <b>Manufacturing Expense Absorbed</b> <b>Comparison of Performance with the Budget</b> <b>For the Three Months Ended March 31, 1940</b>				
	Product			Total
	A	B	C	
Manufacturing expense absorbed:				
Actual.....	\$39,538	\$102,818	\$21,094	\$163,450
Budget (Table 38).....	40,131	95,236	20,303	155,670
Over-under*.....	<u>\$ 593*</u>	<u>\$ 7,582</u>	<u>\$ 791</u>	<u>\$ 7,780</u>
Variation in production:				
Actual.....	20,000	24,000	3,200	
Budget.....	20,300	22,230	3,080	
Over-under*..... (1)	<u>300*</u>	<u>1,770</u>	<u>120</u>	
Budget unit rate (Table 37) .. (2)	<u>\$ 1.977</u>	<u>\$ 4.284</u>	<u>\$ 6.592</u>	
Difference in manufacturing expense absorbed, caused by variation in production... (1 x 2)	<u>\$ 593*</u>	<u>\$ 7,582</u>	<u>\$ 791</u>	<u>\$ 7,780</u>

The manufacturing expenses incurred during the three months ended March 31, 1940, are compared with the budget in Table 80.

Table 80

<b>THE NORMADALE COMPANY</b> <b>Manufacturing Expenses</b> <b>Comparison of Performance with the Budget</b> <b>For the Three Months Ended March 31, 1940</b>			
Item	Actual	Budget (Table 34)	Over- Under*
Indirect labor.....	\$ 15,000	\$ 15,470	\$ 470*
Indirect material.....	17,000	16,575	425
Repairs and maintenance.....	12,000	13,260	1,260*
Power.....	9,800	9,282	518
Heat.....	7,200	6,600	600
Light.....	2,000	1,925	75
Rent.....	45,000	45,000	
Depreciation.....	60,000	60,000	
Insurance.....	5,500	5,500	
Factory office expenses.....	4,800	4,500	300
Total.....	<u>\$178,300</u>	<u>\$178,112</u>	<u>\$ 188</u>

**Summary of causes of differences in cost of goods manufactured.** Table 81 shows a summary of the causes of differences between the actual and budgeted cost of manufacturing for each of the company's three products.

Table 81

THE NORMADALE COMPANY				
Summary of Causes of				
Differences in Cost of Manufacturing				
For the Three Months Ended March 31, 1940				
	Product			Total
	<u>A</u>	<u>B</u>	<u>C</u>	
Variation in cost of manufacturing due to:				
Variation in quantity of production:				
Materials (Table 77).....	\$1,473*	\$14,337	\$2,223	\$15,087
Labor (Table 78).....	450*	5,753	600	5,903
Manufacturing expense (Table 79).....	593*	7,582	791	7,780
Total.....	<u>\$2,516*</u>	<u>\$27,672</u>	<u>\$3,614</u>	<u>\$28,770</u>
Variation in unit cost:				
Materials (Table 77).....	\$1,749*	\$ 9,900*	\$5,791*	\$17,440*
Labor (Table 78).....	2,700*	13,000	5,000	15,300
Manufacturing expense.....	—	—	—	—
Total.....	<u>\$4,449*</u>	<u>\$ 3,100</u>	<u>\$ 791*</u>	<u>\$ 2,140*</u>
Total variations.....	<u>\$6,965*</u>	<u>\$30,772</u>	<u>\$2,823</u>	<u>\$26,630</u>

### Part 3

Table 77 showed a difference between the actual and budgeted cost of all materials used amounting to \$2,353. The analysis of differences with respect to each of the seven materials used in the manufacture of the company's three products is shown in Table 82. This table shows the detailed computation in connection with the analysis of Material R and a summary of similar analyses prepared for the other materials.

A further analysis of the differences in the quantities of materials used is shown in Table 83 on page 150.

**THE NORMADALE COMPANY**  
**Cost of Materials Used**  
**Comparison of Performance with the Budget**  
**For the Three Months Ended March 31, 1940**

Illustrative Analysis with Respect to:		Summary of Analyses for All Materials:						
Material R		R	S	T	V	X	Y	Z
Cost of material used:								
Actual.....	\$83,652	\$83,652	\$18,880	\$ 66,800	\$ 21,920	\$24,540	\$ 81,048	\$ 37,596
Budget.....	82,280	82,280	18,240	67,125	21,083	29,660	78,111	40,290
Over-under*, ....	\$ 1,372	\$ 1,372	\$ 640	\$ 325*	\$ 837	\$ 5,120*	\$ 2,937	\$ 2,694*
Quantity used:								
Cost of material used:								
Actual.....(1)	83,320	83,320	3,776	133,600	109,600	38,400	810,480	192,200
Budget.....	82,280	82,280	3,648	134,250	105,415	39,547	781,107	201,450
Over-under*, (2)	1,040	1,040	128	650*	4,185	1,147*	29,373	9,250*
Unit cost price:								
Actual.....	\$ 1.004	\$ 1.004	\$ 5.00	\$ .50	\$ .20	\$ .639	\$ .10	\$ .196
Budget.....(3)	1.000	1.000	5.00	.50	.20	.750	10	200
Over-under*, (4)	\$.004	\$.004				\$.111*		\$.004*
Effect of differences:								
Quantity .. (2 x 3)	\$ 1,040	\$ 1,040	\$ 640	\$ 325*	\$ 837	\$ 860*	\$ 2,937	\$ 1,850*
Unit cost.. (1 x 4)	332	332				4,260*		844*
Total.....	\$ 1,040	\$ 1,372	\$ 640	\$ 325*	\$ 837	\$ 5,120*	\$ 2,937	\$ 2,694*
Price.....(1 x 4)	332	332						
Total.....	\$ 1,372	\$ 1,372						
Quantity Used From								
Inventory December 31, 1939	Current Purchases							
Actual.....(1)	80,000	3,320						
Budget (Table 24) ...	80,000	2,280						
Over-under*, (2)		1,040						
Unit cost price:	\$ 1.00	\$ 1.10						
Actual.....	1.00	1.00						
Budget (Table 27).....(3)	\$.10	\$.10						
Over-under*, (4)	\$1,040	\$1,040						
Effect of differences:								
Quantity ... (2 x 3)	\$ 1,040	\$ 1,040						
Price.....(1 x 4)	332	332						
Total.....	\$ 1,372	\$ 1,372						

**THE NORMADALE COMPANY**  
**Quantity of Materials Used**  
**Comparison of Performance with the Budget**  
**For the Three Months Ended March 31, 1940**

Illustrative Analysis with Respect to:

Summary of Analyses for All Materials:

Material R	Product			Unit Rate		Differences in Quantity of Materials Caused by Variation in:		
	A	B	C	Actual	Budget	Over-Under*	Units of Production	Rate Per Unit
<b>Total quantity of material used:</b>								
Actual.....	35,000	43,200	5,120	83,320				
Budget (Table 24).....	36,134	41,126	5,020	82,280				
Over-under*.....	1,134*	2,074	100	1,040				
<b>Number of units of product:</b>								
Actual.....	20,000	24,000	3,200					
Budget (Table 22).....	20,300	22,230	3,030					
Over-under*.....	300*	1,770	120					
<b>Rate per unit of product:</b>								
Actual.....	1.75	1.80	1.60					
Budget (Table 23).....	1.78	1.85	1.63					
Over-under*.....	.03*	.05*	.03*					
<b>Effect of differences:</b>								
Units of production... (2 x 3)	534*	3,274	196	2,936				
Rate per unit..... (1 x 4)	600*	1,200*	96*	1,896*				
Total.....	1,134*	2,074	100	1,040				
<b>Material used:</b>								
Product A:								
R.....				1.75	1.78	.03*	534*	600*
S.....				.08	.08		24*	24*
T.....				2.00	2.00		600*	600*
V.....				16.30	16.30		4,890*	4,890*
Z.....				3.25	3.50	.25*	1,050*	5,000*
Product B:								
R.....				1.80	1.85	.05*	3,274	1,200*
S.....				.08	.08		142	142
T.....				4.50	5.00	.50*	8,850	12,000*
V.....				2.50	2.50		4,425	4,425
Y.....				18.50	18.50		32,745	32,745
Z.....				4.50	5.00	.50*	8,850	12,000*
Product C:								
R.....				1.60	1.63	.03*	196	96*
S.....				.08	.08		10	10
T.....				8.00	7.50	.50	900	1,600
V.....				3.00	3.00		360	360
X.....				12.00	12.84	.84*	1,541	2,638*
Y.....				12.65	12.65		1,518	1,518
Z.....				6.00	6.25	.25*	750	800*
<b>Total all products:</b>								
Material used:								
R.....				2,936			2,936	1,896*
S.....				128			128	128
T.....				9,750			9,750	10,400*
V.....				4,185			4,185	4,185
X.....				1,541			1,541	2,638*
Y.....				29,373			29,373	29,373
Z.....				8,550			8,550	17,800*



Only three of the seven materials showed a difference in unit-cost price. The differences are analyzed as follows:

Table 84

<p style="text-align: center;"><b>THE NORMADALE COMPANY</b>  <b>Unit-Cost Price of Material Used</b>  <b>Comparison of Performance with the Budget</b>  <b>For the Three Months Ended March 31, 1940</b></p>			
	<u>Material R</u>	<u>Quantity Used From</u>	
		<u>Inventory December 31, 1939</u>	<u>Current Purchases</u>
			<u>Total</u>
Quantity:			
Actual.....(1)	80,000	3,320	83,320
Budget (Table 24) .....	80,000	2,280	82,280
Over-under*.....		1,040	1,040
Unit-cost price:			
Actual .....	\$ 1.00	\$ 1.10	\$ 1.004
Budget (Table 27) .....	1.00	1.00	1.000
Over-under*.....(2)		\$ .10	\$ .004
Difference in cost of materials used caused by variation in unit-cost price. . . (1 x 2)		\$ 332	\$ 332
	<u>Material X</u>		
Quantity:			
Actual.....(1)	10,000	28,400	38,400
Budget (Table 24) .....	10,000	29,547	39,547
Over-under*..		1,147*	1,147*
Unit-cost price:			
Actual.....	\$ .75	\$ .60	\$ .639
Budget (Table 27) .....	.75	.75	.750
Over-under*.....(2)		\$ .15*	\$ .111
Difference in cost of materials used caused by variation in unit-cost price. . . (1 x 2)		\$ 4,260	\$ 4,260
	<u>Material Z</u>		
Quantity:			
Actual.....(1)	150,000	42,200	192,200
Budget (Table 24) .....	150,000	51,450	201,450
Over-under*.....		9,250*	9,250*
Unit-cost price:			
Actual .....	\$ .20	\$ .18	\$ .196
Budget (Table 27) .....	.20	.20	.200
Over-under*.....(2)		\$ .02*	\$ .004
Difference in cost of materials used caused by variation in unit-cost price. . . (1 x 2)		\$ 844	\$ 844

## CHAPTER 15

### COMPARISON OF THE ACTUAL WITH THE ESTIMATED BALANCE SHEET

**Balance sheet.** A comparison of the balance sheet on March 31, 1940 with the budget is presented in Table 85. The budgeted balance sheet of March 31 was prepared according to the method explained in Chapter 13.

Table 85

THE NORMADALE COMPANY			
Balance Sheet			
Comparison of Performance with the Budget			
March 31, 1940			
	<u>Actual</u>	<u>Budget</u>	<u>Over- Under*</u>
<b><u>Assets</u></b>			
Total current assets (Table 86) . . . . .	\$1,856,844	\$1,853,112	\$ 3,732
Prepaid expenses:			
Unexpired insurance . . . . .	\$ 10,625	\$ 10,125	\$ 500
Prepaid interest . . . . .	3,000	3,000	—
Underabsorbed manufacturing expense	14,850	22,442	7,592*
Total prepaid expenses . . . . .	\$ 28,475	\$ 35,567	\$ 7,092*
Fixed assets:			
Land . . . . .	\$ 225,000	\$ 225,000	—
Buildings . . . . .	2,555,000	2,525,000	\$30,000
Equipment . . . . .	2,490,000	2,495,000	5,000*
Total . . . . .	\$5,270,000	\$5,245,000	\$25,000
Less reserve for depreciation . . . . .	1,284,000	1,284,000	—
Net fixed assets . . . . .	\$3,986,000	\$3,961,000	\$25,000
Total assets . . . . .	\$5,871,319	\$5,849,679	\$21,640
<b><u>Liabilities and Net Worth</u></b>			
Total current liabilities (Table 86) . . . . .	\$ 824,909	\$ 829,128	\$ 4,219*
Mortgage payable . . . . .	\$ 500,000	\$ 500,000	\$ —
Net worth:			
Preferred capital stock . . . . .	\$1,500,000	\$1,500,000	—
Common capital stock . . . . .	2,500,000	2,500,000	—
Surplus . . . . .	546,410	520,551	\$25,859
Total net worth . . . . .	\$4,546,410	\$4,520,551	\$25,859
Total liabilities and net worth . . . . .	\$5,871,319	\$5,849,679	\$21,640

**Working capital.** A comparison of the working-capital position shows more working capital than estimated, as follows:

	<u>Actual</u>	<u>Budget</u>	<u>Over- Under*</u>
Total current assets.....	\$1,856,844	\$1,853,112	\$ 3,732
Total current liabilities.....	824,909	829,128	4,219
Working capital.....	<u>\$1,031,935</u>	<u>\$1,023,984</u>	<u>\$ 7,951</u>
Working-capital ratio.....	2.25 to 1	2.23 to 1	

The difference between the actual working capital and the budget estimate is \$7,951 and is detailed in Table 86.

Table 86

### THE NORMADALE COMPANY

#### Working Capital

#### Comparison of Performance with the Budget

March 31, 1940

	<u>Actual</u>	<u>Budget</u>	<u>Difference in Working Capital</u>	
			<u>Increase</u>	<u>Decrease</u>
Current assets:				
Cash.....	\$ 89,020	\$ 203,692		\$114,672
Accounts receivable (net) ..	876,580	771,058	\$105,522	
Inventories:				
Materials.....	248,064	250,775		2,711
Work in process.....	125,000	125,000		
Finished goods.....	518,180	502,587	15,593	
Total current assets. .	<u>\$1,856,844</u>	<u>\$1,853,112</u>		
Current liabilities:				
Notes payable.....	\$ 600,000	\$ 600,000		
Accounts payable.....	116,600	123,845	7,245	
Accrued local taxes.....	49,700	50,200	500	
Accrued interest.....	2,083	2,083		
Accrued federal income taxes	56,526	53,000		3,526
Total current liabilities	<u>\$ 824,909</u>	<u>\$ 829,128</u>		
Working capital.....	<u>\$1,031,935</u>	<u>\$1,023,984</u>		
Working capital in excess of budget.....				<u>7,951</u>
			<u>\$128,860</u>	<u>\$128,860</u>

**Cash.** The cash balance on March 31, 1940 is \$114,672 less than that estimated in the budget. A summary of the causes of the difference in the cash balance is shown in Table 87.

Table 87

**THE NORMADALE COMPANY**  
**Summary of Difference in Cash Balance**  
**March 31, 1940**

	Actual	Budget (Table 60)	Difference in Cash Balance		Explanation of Differences
			Increases	Decreases	
Cash balance, December 31, 1939 . . .	\$ 200,000	\$ 200,000			
Collections from accounts receivable.	924,650	979,320			Difference in credits to accounts receivable (Table 88) . . . . . \$56,656
Total . . . . .	<u>\$1,124,650</u>	<u>\$1,179,320</u>		\$ 54,670	Difference in discount on sales (Table 67) . . . . . 1,986
Disbursements:					Net difference . . . . . <u>\$54,670</u>
Materials . . . . .	\$ 315,900	\$ 309,433		6,467	Difference in debits to accounts payable (Table 91) . . . . . \$ 2,181
Labor . . . . .	139,300	118,097		21,203	Difference in discount on purchases (Table 67) . . . . . 4,286
Insurance . . . . .	7,500	7,000		500	Total difference . . . . . <u>\$ 6,467</u>
Federal income taxes . . . . .	12,500	12,500			See Table 78
Building expenses . . . . .	15,000	16,000			Actual premiums paid over budget
Manufacturing expenses . . . . .	67,800	67,612	\$ 1,000		Difference in cost of repairs and upkeep—see Table 73
Distribution expenses . . . . .	149,400	144,326		188	See Table 80
Administrative expenses . . . . .	71,730	69,160		5,074	See Table 71
Capital additions . . . . .	85,000	60,000		25,000	Difference in administrative expenses \$3,346 (Table 72)
Dividends . . . . .	150,000	150,000			Less difference in bad debts, \$776, not requiring cash outlay
Interest . . . . .	21,500	21,500			See Table 85
Total disbursements . . . . .	<u>\$1,035,630</u>	<u>\$ 975,628</u>			
Cash balance, March 31, 1940 . . . . .	<u>\$ 89,020</u>	<u>\$ 203,692</u>			
Cash balance less than budget			114,672		
			<u>\$115,672</u>	<u>\$115,672</u>	

**Accounts receivable.** The difference in net accounts receivable shown in Table 86 is accounted for as follows:

Table 88

<b>THE NORMADALE COMPANY</b> <b>Net Accounts Receivable</b> <b>Comparison of Performance with the Budget</b> <b>March 31, 1940</b>			
	<u>Actual</u>	<u>Budget</u>	<u>Over- Under*</u>
Accounts receivable:			
Balance, December 31, 1939.....	\$ 800,000	\$ 800,000	
Sales (Table 68).....	<u>1,116,000</u>	<u>1,066,358</u>	<u>\$ 49,642</u>
Total.....	<u>\$1,916,000</u>	<u>\$1,866,358</u>	<u>\$ 49,642</u>
Less:			
Collections.....	\$ 942,650	\$ 999,306	\$ 56,656*
Bad accounts written off. . . .	<u>13,100</u>	<u>12,000</u>	<u>1,100</u>
Total credits . . . . .	<u>\$ 955,750</u>	<u>\$1,011,306</u>	<u>\$ 55,556*</u>
Balance, March 31, 1940.....	<u>\$ 960,250</u>	<u>\$ 855,052</u>	<u>\$105,198</u>
Reserve for bad debts:			
Balance, December 31, 1939. . .	\$ 80,000	\$ 80,000	
Provision for bad debt (Table 72)	<u>16,770</u>	<u>15,994</u>	<u>\$ 776</u>
Total.....	<u>\$ 96,770</u>	<u>\$ 95,994</u>	<u>\$ 776</u>
Bad accounts written off.....	<u>13,100</u>	<u>12,000</u>	<u>1,100</u>
Balance, March 31, 1940.....	<u>\$ 83,670</u>	<u>\$ 83,994</u>	<u>\$ 324*</u>
Net accounts receivable.....	<u>\$ 876,580</u>	<u>\$ 771,058</u>	<u>\$105,522</u>

**Inventory of materials.** The inventory of materials on March 31, 1940 was \$2,711 less than the budget estimate. This difference is analyzed in Table 89. A detailed analysis is given as to the inventory of Material R. In like manner the inventories of all materials were analyzed, and a summary is contained in the table. It will be noted that the actual material purchases were \$5,064 less than the budget, and the actual materials used in production amounted to \$2,353 less than budgeted.

**Inventory of finished goods.** The difference between the actual and the budgeted inventory of finished goods on March 31, 1940 is accounted for in Table 90. An analysis is shown as to each product and a summary is given for the three products.

**THE NORMADALE COMPANY**  
**Inventory of Materials**  
**Comparison of Performance with the Budget**  
**March 31, 1940**

**Illustrative Analysis with Respect to:**

**Material R**

**Summary of Analyses for All Materials:**

Summary of Analyses for All Materials:									
	Material R	Quantity	Unit Cost	Total Cost	Difference in Inventory of Material R Caused by Variation in:		Difference in Inventory of Materials Caused by Variation in:		
					Quantity (2 x 3)	Unit Cost (1 x 4)	Material	Actual	Budget
Inventory, December 31, 1939:									
Actual.....		80,000	\$1.00	\$80,000					
Budget.....		80,000	1.00	80,000					
Over-under*.....									
Purchases:									
Actual.....		75,000	\$1.10	\$82,500					
Budget.....		76,280 (3)	1.00	76,280					
Over-under*.....		1,280*(4)	\$ .10	\$ 128.00					
Used in production (Table 82):									
Actual.....		83,320	\$1.004	\$83,652					
Budget.....		82,280 (3)	1.000	82,280					
Over-under*.....		1,040 (4)	\$ .004	\$ 4.16					
Inventory, March 31, 1940:									
Actual.....		71,680	\$1.10	\$78,848					
Budget.....		74,000 (3)	1.00	74,000					
Over-under*.....		2,320*(4)	\$ .10	\$ 232.00					
					Recapitulation				
					Difference in inventory of materials caused by:				
					Variation in purchases:				
					Quantity.....				
					Unit cost.....				
					Variation in production:				
					Quantity.....				
					Unit cost.....				
					Net difference.....				

**Recapitulation**

Difference in inventory of materials caused by:	
Variation in purchases:	
Quantity.....	\$ 436
Unit cost.....	5,500*
Variation in production:	
Quantity.....	\$2,419
Unit cost.....	4,772*
Net difference.....	\$2,711*

R	\$ 78,848	\$ 74,000	\$4,848	\$1,280*	\$7,500	\$1,040	\$ 332
S	13,620	13,750	130*	510	640		
T	58,200	60,000	1,800*	2,125*	325*		
V	16,080	16,400	320*	517	837		
X	18,960	13,125	5,835	9,715	9,000*	860*	4,260*
Y	33,952	42,500	8,548*	5,611*	2,937	2,937	
Z	28,404	31,000	2,596*	1,290*	4,000*	1,850*	844*
Total	\$248,064	\$250,775	\$2,711*	\$ 436	\$5,500*	\$2,419	\$4,772*

Table 90

**THE NORMADALE COMPANY**  
**Inventory of Finished Goods**  
**Comparison of Performance with the Budget**  
**March 31, 1940**

		<u>Product A</u>		<u>Difference in Inventory Caused by Variation in:</u>		
		<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Quantity (2 x 3)</u>	<u>Unit Cost (1 x 4)</u>
<u>Inventory, December 31, 1939:</u>						
Actual.....		16,000	\$ 8.387	\$134,192		
Budget.....		<u>16,000</u>	<u>8.387</u>	<u>134,192</u>		
Over-under*						
<u>Finished goods manufactured (Table 76):</u>						
Actual.....	(1)	20,000	\$ 8.165	\$163,291		
Budget.....		<u>20,300</u>	<u>8.387</u>	<u>170,256</u>		
Over-under*	(2)	<u>300*</u>	<u>\$ .222*</u>	<u>\$ 6,965*</u>	\$ 2,516*	\$4,449*
<u>Finished goods sold (Table 69):</u>						
Actual.....	(1)	19,500	\$ 8.347	\$162,762		
Budget.....		<u>17,534</u>	<u>8.387</u>	<u>147,057</u>		
Over-under*	(2)	<u>1,966</u>	<u>\$ .040*</u>	<u>\$ 15,705</u>	16,489	784*
<u>Inventory, March 31, 1940:</u>						
Actual.....	(1)	16,500	\$ 8.165	\$134,721		
Budget.....		<u>18,766</u>	<u>8.387</u>	<u>157,391</u>		
Over-under*	(2)	<u>2,266*</u>	<u>\$ .222*</u>	<u>\$ 22,670*</u>	<u>\$19,005*</u>	<u>\$3,665*</u>

Table 90—Continued

**THE NORMADALE COMPANY**  
**Inventory of Finished Goods**  
**Comparison of Performance with the Budget**  
**March 31, 1940**

<u>Product B</u>		<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Difference in Inventory Caused by Variation in:</u>	
					<u>Quantity (2 x 3)</u>	<u>Unit Cost (1 x 4)</u>
Inventory, December 31, 1939:						
Actual.....		25,000	\$15.634	\$390,850		
Budget.....		25,000	15.634	390,850		
Over-under*						
Finished goods manufactured (Table 76):						
Actual.....	(1)	24,000	\$15.763	\$378,316		
Budget.....	(3)	22,230	15.634	347,544		
Over-under*	(2)	1,770	\$.129	\$ 30,772	\$27,672	\$3,100
Finished goods sold (Table 69):						
Actual.....	(1)	26,000	\$15.639	\$406,615		
Budget.....	(3)	27,038	15.634	422,712		
Over-under*	(2)	1,038*	\$.005	\$ 16,097*	16,228*	131
Inventory, March 31, 1940:						
Actual.....	(1)	23,000	\$15.763	\$362,551		
Budget.....	(3)	20,192	15.634	315,682		
Over-under*	(2)	2,808	\$.129	\$ 46,869	\$43,900	\$2,969



Table 90—Continued

THE NORMADALE COMPANY				
Inventory of Finished Goods				
Comparison of Performance with the Budget				
March 31, 1940				
	Product C	Quantity	Unit Cost	
Inventory, December 31, 1939:				
Actual.....		1,500	\$ 30.117	
Budget.....		<u>1,500</u>	<u>30.117</u>	
Over-under*		<u>          </u>	<u>          </u>	
Finished goods manufactured (Table 76):				
Actual.....		3,200	\$ 29.868	
Budget.....	(1)	<u>3,080</u>	<u>30.117</u>	(3)
Over-under*	(2)	<u>120</u>	<u>\$.249*</u>	(4)
Finished goods sold (Table 69):				
Actual.....		4,000	\$ 29.962	
Budget.....	(1)	<u>3,600</u>	<u>30.117</u>	(3)
Over-under*	(2)	<u>400</u>	<u>\$.155*</u>	(4)
Inventory, March 31, 1940:				
Actual.....		700	\$ 29.868	
Budget.....	(1)	<u>980</u>	<u>30.117</u>	(3)
Over-under*	(2)	<u>280*</u>	<u>\$.249*</u>	(4)

**THE NORMADALE COMPANY**  
**Inventory of Finished Goods**  
**Comparison of Performance with the Budget**  
**March 31, 1940**

Summary of Differences in Inventory of Finished Goods

	Product			Total
	<u>A</u>	<u>B</u>	<u>C</u>	
Inventory, March 31, 1940:				
Actual.....	\$134,721	\$362,551	\$ 20,908	\$518,180
Budget.....	157,391	315,682	29,514	502,587
Over-under*.....	<u>\$ 22,670*</u>	<u>\$ 46,869</u>	<u>\$ 8,606*</u>	<u>\$ 15,593</u>
Differences in inventory caused by:				
Variation in goods manufactured:				
Quantity.....	\$ 2,516*	\$ 27,672	\$ 3,614	\$ 28,770
Unit cost.....	4,449*	3,100	791*	2,140*
Variation in goods sold:				
Quantity.....	16,489*	16,228	12,046*	\$ 12,307*
Unit Cost.....	784	131*	617	1,270
Total.....	<u>\$ 22,670*</u>	<u>\$ 46,869</u>	<u>\$ 8,606*</u>	<u>\$15,593</u>
				<u>\$26,630</u>
				<u>11,037*</u>
				<u>\$15,593</u>

**Accounts payable.** The accounts payable on March 31, 1940 amounted to \$116,600, as compared with an estimated total of \$123,845. The difference of \$7,245 is explained in Table 91.

Table 91

**THE NORMADALE COMPANY**  
**Accounts Payable**  
**Comparison of Performance with the Budget**  
**March 31, 1940**

	<u>Actual</u>	<u>Budget</u>	<u>Over- Under*</u>
Balance, December 31, 1939..	\$100,000	\$100,000	
Material purchases.....	344,500	349,564	\$5,064*
Total .....	\$444,500	\$449,564	\$5,064*
Payments.....	327,900	325,719	2,181
Balance, March 31, 1940.....	<u>\$116,600</u>	<u>\$123,845</u>	<u>\$7,245*</u>

**Accruals.** The comparison of the actual and budgeted building expenses (Table 73) shows a \$500 larger accrual for real-estate taxes than estimated, which accounts for the increase in accrued local taxes in Table 86.

The accrual for federal income taxes is \$3,526 more than the budget amount, which is due to the difference between the actual and budgeted net profits for the three months ended March 31, 1940.

**Prepaid expenses.** The balance of unexpired insurance on March 31, 1940 is \$500 more than was estimated in the budget, which is due to an increase in the disbursements for insurance premiums, as shown in Table 87.

The underabsorbed manufacturing expense on March 31, 1940 was \$7,592 less than the balance estimated in the budget. The difference is analyzed in Table 92.

Table 92

**THE NORMADALE COMPANY**  
**Underabsorbed Manufacturing Expenses**  
**Comparison of Performance with the Budget**  
**March 31, 1940**

	<u>Actual</u>	<u>Budget</u>	<u>Over- Under*</u>
Manufacturing expenses for three months ended March 31, 1940 (Table 80) . . . . .	\$178,300	\$178,112	\$ 188
Manufacturing expenses applied for three months ended March 31, 1940 (Table 79)	<u>163,450</u>	<u>155,670</u>	<u>7,780</u>
Balance, March 31, 1940 . . . . .	<u>\$ 14,850</u>	<u>\$ 22,442</u>	<u>\$7,592*</u>

**Fixed assets.** The comparison of the actual and budgeted balance sheets (Table 85) shows a larger balance in the building account by \$30,000 and a smaller balance in the equipment account by \$5,000. These differences agree with the variation in the disbursements for buildings and equipment shown in Table 87.

**Surplus.** The balance of the surplus account on March 31, 1940 is \$25,859 more than the balance estimated in the budget. This difference is due to the larger profit for the three months, as shown in Table 67 on page 136.



## CHAPTER 16

### ENFORCING THE BUDGET

**Budget enforcement a management function.** A budget program may be carried only to the length of preparing estimates of future operations and of the resulting financial condition, and may not include comparisons of the estimates and the performance, analyses to determine causes of variations, and corrective measures to enforce the budget. If the budget is used, not as a mere estimate, but as a plan to be realized to the fullest extent possible, the enforcement becomes a problem for management rather than for the accounting department. The methods of enforcement are primarily management methods. For example, bonuses may be given to members of the organization if the operations which they control are in satisfactory conformity with the budget, and other incentives and management devices may be applied to keep operations as closely as possible in agreement with the estimates.

Although budget enforcement is primarily a management function, the accounting department can be of great assistance. The three principal services which it can render to management in the enforcement of the budget are:

- (1) Providing an accounting procedure to control expenditures so that no commitments will be made beyond budget estimates without authority to do so.
- (2) Making comparisons of estimates with performance, and preparing analyses of variations.
- (3) Adjusting current budget provisions to make allowances for differences between the performance and the budget for prior periods.

**Controlling expenditures.** The individuals who are charged with responsibility for expenditures not infrequently seek to excuse expenditures in excess of budget estimates by stating that they did not know that the current expenditures were excessive until statements were prepared by the accounting department after the close of the budget period. To keep those responsible for performance currently informed of the unexpended balances of budget estimates, a control may be exercised over daily commitments.

For example, in the central purchasing department each purchase requisition may be entered on a card devoted to the item to be purchased and provided with a column to show the unexpended balance of the budget allowance. If the budget estimate is overexpended or if it is nearly expended with a possibility of emergency purchase requirements developing in the future, the purchasing department will return the requisition to the operating manager for reconsideration. In some applications of this procedure, the approval of a major executive is required on all requisitions showing expenditures in excess of the budget estimates.

If purchases are made for future delivery, a rule may be established that at least a certain per cent (for instance 25%) of the quantity budgeted for delivery in a given month cannot be ordered before the first of the month. Thus commitments to March 31st for April delivery could not exceed 75% of the April budget. The 25% withheld is for emergency purchases required for current month delivery.

**Making comparisons and analyses.** Methods of comparing estimates and performance were discussed in Chapters 14 and 15. However, the illustrations in those chapters dealt with data applicable to the business as a whole, and not with departmental and other details. The accounting department should carry its comparisons of esti-

mates and performance and its analyses of variations to sufficient detail to enable management to determine exactly where enforcement pressure should be exercised.

For example, the labor budget in Chapter 7 shows the *total* labor rate for each product. This total labor rate was estimated by giving consideration to all labor operations required in manufacturing the product, and estimating the unit labor cost of each operation. The sum of these unit labor rates was the total labor rate used in Chapter 7. The accounting department should retain the working papers used in assembling this data, and subsequently should prepare an analysis relative to the estimated and actual unit labor costs of each operation. Thus the variation between the budget and the performance with respect to total labor cost can be localized as to specific operations.

The details assembled in making other estimates may be used in a similar manner. Chapter 3 explained that sales estimates originate with the salesmen and the district organizations. Variations in sales should be analyzed by salesmen and by districts to locate responsibility for differences.

Expense budgets are compiled from detailed data. For example, office pay rolls are budgeted by estimating the number of employees at different salary levels. The details assembled in the pay-roll budgets should be so organized as to permit subsequent comparisons which will localize variations to specific jobs or persons.

**Adjusting current budget estimates.** If operations during a portion of the budget period are at variance with the estimates, it may become necessary to revise the budgets for the current and future portions of the period, either to compensate for the variations or to make other adjustments. A few illustrations of such revisions, presented below, are based on data of The Normadale Company.



Table 90 (Chapter 15) shows the variations in quantities of finished-goods inventories on March 31, 1940 to be as follows:

Product A—Actual inventory is 2,266 units less than budget.

Product B—Actual inventory is 2,808 units more than budget.

Product C—Actual inventory is 280 units less than budget.

If the inventory quantities are to be brought into agreement with the budget, these differences should be corrected through an adjustment of current production. The following table shows the computation of such an adjustment of the production for the month of April.

Table 93

**THE NORMADALE COMPANY**  
Adjusted Production Estimate  
Month of April, 1940

	Product		
	<u>A</u>	<u>B</u>	<u>C</u>
Production budget for April 1940 (assumed to be $\frac{1}{3}$ of second quarter) (Table 22) . . . . .	6,767	9,262	1,073
Difference in finished-goods inventory March 31, 1940 (Table 90) . . . . .	2,266*	2,808	280*
Adjusted production for April . . . . .	<u>9,033</u>	<u>6,454</u>	<u>1,353</u>

It is assumed that the computation of the adjustment is made soon enough to permit the revision of April production orders. If the adjustment is not known in time to change the April production schedules, it is applied to the production schedules of the first month in which the adjustment can be made.

The adjusted production for April will cause a change in the material needed for manufacturing as shown in Table 24. The following illustration covers Material R only. Similar computations could be made for other materials.

Table 94

THE NORMADALE COMPANY				
Adjusted Material R Requirements				
Month of April, 1940				
	<u>A</u>	<u>Product</u> <u>B</u>	<u>C</u>	<u>Total</u>
Adjusted production for April (Table 93).....	9,033	6,454	1,353	
Budget unit rate (Table 23).....	<u>1.78</u>	<u>1.85</u>	<u>1.63</u>	
Quantity required for adjusted production.....	<u>16,079</u>	<u>11,940</u>	<u>2,205</u>	<u>30,224</u>

The comparison of Material R inventory on March 31, 1940 (Table 89) shows 2,320 units less than budgeted. If the actual inventory is to be brought into agreement with the estimated inventory on April 30, 1940, purchases for the month of April will need to be adjusted as shown in Table 95.

Table 95

THE NORMADALE COMPANY		
Adjusted Estimate of Material R Purchases		
Month of April, 1940		
Purchase budget for April (assumed to be $\frac{1}{2}$ of second quarter) (Table 28).....		30,930 units
Less difference in requirements for April production: Material budget for April ( $\frac{1}{2}$ of second quarter) (Table 24).....	30,930	
Adjusted requirements (Table 94).....	<u>30,224</u>	<u>706</u>
		30,224 units
Add actual inventory on March 31, 1940 less than budget (Table 89).....		<u>2,320</u>
Adjusted purchase budget.....		<u>32,544</u> units

Assuming that commitments totaling 25,650 units have already been made for April delivery, the quantity of Material R still "open to buy" is 6,894 units (32,544 units—25,650 units).

Similar adjustments should be made in other estimates to show the effect of differences in performance to date. Variable distribution-expense allowances should be changed

to reflect the differences in sales performance as compared to the budget. Estimated collections should be adjusted to conform with the actual sales. In all cases, however, adjusted estimates will be prepared only when the differences in performance are large enough to warrant such a computation.

**Revising the budget.** Whenever the budget no longer represents an expected actual operating program, it should be revised. The budget must be flexible. It is not an end in itself, but merely a means to an end. As such, it must be adjusted to meet emergencies. The individuals responsible for preparing the budget should have the power to revise it. However, the budget should not be revised merely because some department is not meeting its estimates. The budget should be revised when performance is no longer possible and when the estimates no longer represent a proper basis for comparing performance.

## ASSIGNMENTS

## INTRODUCTION TO ASSIGNMENTS

The problem material in this book is divided into two groups:

1. A continuous co-ordinated set of assignments dealing with the preparation of a budget for a single enterprise, the Alpha Company. These assignments contemplate the preparation of a complete budget, the comparison of the performance with the budget, and analyses of important variations.
2. A number of miscellaneous problems and questions intended to supplement the continuous budget problem by presenting a variety of conditions.

The following assignment chart is offered as a guide in co-ordinating the problem material with the text. It is based on the author's experience in teaching budgeting at Northwestern University in a course extending over fifteen weeks; but, regardless of the number of weeks devoted to the course, the chart will indicate what work can be assigned after each chapter.

### ASSIGNMENT CHART

<u>Week</u>	<u>Chapter in Text</u>	<u>Alpha Company Budget Assign- ment Number</u>	<u>Questions and Problems</u>
First	1	—	Questions 1 to 10
Second	2	1	—
Third	3	2	Problem 1
Fourth	4 and 5	3 and 4	Problem 2
Fifth	6	5	Problem 3
Sixth	7 and 8	6 and 7	Problem 4
Seventh	9	8	Problem 5
Eighth	10 and 11	9 and 10	Problem 6
Ninth	12	11	Problem 7
Tenth	13	12	Problem 8
Eleventh	14, Part I	13	Problem 9
Twelfth	14, Parts II and III	14	Problem 10
Thirteenth	15	15	Problem 11
Fourteenth	16	16	Problem 12
Fifteenth	—	—	Problem 13

# ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 1

The Alpha Company sells a single product which is manufactured to stock and is distributed throughout the United States. The company has never had a budget, but has decided to prepare one for 1941. The budget now to be set up will cover only the first three months of the year, although some estimates may be made for the entire year.

Work on the preparation of the budget for the first quarter of 1941 is begun during the month of December, 1940. It is planned to have the complete three-month budget ready by the first of the year. Since the December 31, 1940 balance sheet and the profit-and-loss statement for 1940 will not be available until after the close of the year, the budget will be prepared by using as a basis:

- (A) The actual trial balance on November 30, 1940.
- (B) Estimates for the month of December, 1940.

The accounting system includes the following ledgers:

- General ledger.
- Factory expense ledger.
- Distribution expense ledger.
- Administrative expense ledger.

Trial balances on November 30, 1940 have been prepared by the accounting department and are submitted together with estimates for the month of December, 1940. The following information is also provided:

- (A) Estimated inventories, December 31, 1940:

Materials.....	\$454,000
Work in process.....	175,000
Finished goods. ....	920,000

- (B) Bad debts amounting to \$7,000 are to be charged to the Reserve for Bad Debts in December.
- (C) An income-tax accrual equal to 15% of profits is to be provided.
- (D) Material purchases are paid for in the month following date of purchase.
- (E) Quantities manufactured and sold during, and on hand at the beginning of, 1940 (based on actual data for eleven months and estimates for December) are:

Sold.....	185,000 units
Manufactured.....	190,000 units
Finished-goods inventory, December 31, 1939.....	35,000 units

To provide a basis for the preparation of the budget for 1941, you are required to prepare:

1. Journal entries to apply the December estimates to the November 30 trial balance.
2. A work sheet, to be used in preparing the statements mentioned in 3, 4, and 5 below, and having the following pairs of debit and credit columns:
  - (a) Trial balance, November 30, 1940.
  - (b) December estimates. In these two columns you will post the entries required in (1). Number the entries as you post them.
  - (c) Profit and loss.
  - (d) Balance sheet.
3. Estimated balance sheet, December 31, 1940.
4. Statement of estimated profit and loss for year ending December 31, 1940.
5. Statement of estimated cost of goods manufactured and sold, showing unit cost.

All expenses in connection with the upkeep and maintenance of the building, including insurance, depreciation, taxes, and repairs, are charged to a building-operations account. Each month this account is credited with the amounts applied to manufacturing expense, distribution expense, and administrative expense.

ALPHA COMPANY  
Trial Balance—General Ledger  
November 30, 1940

	Debit	Credit
Cash.....	\$ 382,750	\$ —
Accounts receivable.....	1,598,000	—
Reserve for bad debts.....	—	19,500
Unexpired insurance.....	30,000	—
Prepaid interest.....	9,000	—
Land.....	600,000	—
Buildings.....	3,200,000	—
Equipment.....	3,700,000	—
Reserve for depreciation.....	—	1,839,000
Notes payable.....	—	900,000
Accounts payable.....	—	215,000
Accrued local taxes.....	—	41,500
Accrued interest.....	—	15,625
Accrued federal income tax.....	—	20,000
Mortgage payable.....	—	750,000
Preferred capital stock.....	—	2,000,000
Common capital stock.....	—	3,000,000
Surplus.....	—	1,167,000
Sales.....	—	6,574,000
Inventory of materials, December 31, 1939.....	405,500	—
Inventory of work in process, December 31, 1939.....	175,000	—
Inventory of finished goods, December 31, 1939.....	805,000	—
Material purchases.....	2,293,500	—
Labor.....	825,600	—
Manufacturing-expense ledger control.....	816,500	—
Distribution-expense ledger control.....	1,146,700	—
Administrative-expense ledger control.....	455,200	—
Interest expense.....	79,375	—
Discount on sales.....	84,500	—
Discount on purchases.....	—	65,000
	<u>\$16,606,625</u>	<u>\$16,606,625</u>



**ALPHA COMPANY**  
**Subsidiary Ledger Balances**  
**November 30, 1940**

	<u>Debit</u>
Manufacturing expense ledger:	
Indirect labor.....	\$ 102,000
Factory supplies.....	85,500
Factory rent.....	168,500
Light.....	6,250
Heat.....	20,500
Power.....	43,750
Repairs.....	81,000
Depreciation.....	265,000
Insurance.....	25,500
Factory office expense.....	18,500
Total.....	<u>\$ 816,500</u>
Distribution expense ledger:	
Sales managers' salaries.....	\$ 59,000
Rent.....	25,700
Sales clerical expenses.....	22,000
Salesmen's salaries.....	440,000
Delivery expenses.....	90,500
Commissions and bonuses.....	80,000
Traveling expenses.....	78,500
Advertising.....	351,000
Total.....	<u>\$1,146,700</u>
Administrative expense ledger:	
Executive salaries.....	\$ 88,000
Rent.....	24,750
Depreciation.....	38,500
Other fixed expenses.....	35,750
Office salaries.....	166,400
Office supplies.....	16,800
Telephone and telegraph.....	11,000
Traveling expenses.....	8,500
Provision for bad debts.....	65,500
Total.....	<u>\$ 455,200</u>

ALPHA COMPANY

Estimates for the Month of December, 1940

Sales.....	\$456,000
Material purchases.....	320,000
Labor.....	<u>86,400</u>
Distribution expenses:	
Sales managers' salaries.....	\$ 6,000
Rent.....	2,300
Sales clerical expenses.....	2,000
Salesmen's salaries.....	45,000
Delivery expenses.....	7,500
Commissions and bonuses.....	10,000
Traveling expenses.....	6,500
Advertising.....	<u>54,000</u>
	<u>\$133,300</u>
Administrative expenses:	
Executive salaries.....	\$ 8,000
Rent.....	2,250
Depreciation.....	3,500
Other fixed expenses.....	3,250
Office salaries.....	14,000
Office supplies.....	1,200
Telephone and telegraph.....	1,000
Traveling.....	500
Provision for bad debts.....	<u>4,500</u>
	<u>\$ 38,200</u>
Manufacturing expenses:	
Indirect labor.....	\$ 10,000
Factory supplies.....	8,500
Factory rent.....	15,500
Light.....	750
Heat.....	2,500
Power.....	2,250
Repairs.....	8,000
Depreciation.....	25,000
Insurance expense.....	2,500
Factory office expense.....	<u>1,500</u>
	<u>\$ 76,500</u>

(Continued on the next page)

## ALPHA COMPANY

Estimates for the Month of December, 1940—Continued

Building operations:			
Insurance expense.....	\$	1,500	
Depreciation of buildings.....		7,500	
Taxes.....		3,500	
Repairs.....		7,550	
Total.....	\$	20,050	
Applied as follows:			
Manufacturing expenses.....		15,500	
Distribution expenses.....		2,300	
Administrative expenses.....		2,250	
Total as above.....	\$	20,050	
Interest expense:			
Accrued on mortgage.....	\$	3,125	
On notes payable.....		4,500	
Total.....	\$	7,625	
Cash receipts:			
Collection from accounts receivable.....	\$550,000		
Less cash discounts on sales.....	7,500		
Net receipts.....	\$542,500		
Cash disbursements:			
Labor.....	\$	86,400	
Accounts payable for materials.....	\$215,000		
Less cash discounts on purchases.....	6,000		209,000
Manufacturing expenses.....	\$	76,500	
Less noncash items:			
Factory rental charge.....	\$15,500		
Depreciation.....	25,000		
Insurance expense.....	2,500	43,000	33,500
Distribution expenses.....		\$133,300	
Less noncash item:			
Rental charge.....	2,300		131,000
Administrative expenses.....	\$	38,200	
Less noncash items:			
Rental charge.....	\$	2,250	
Depreciation.....	3,500		
Provision for bad debts.....	4,500	10,250	27,950
Buildings repairs.....		7,550	
Insurance premiums.....		5,000	
Interest on notes payable.....		4,500	
Equipment.....		50,000	
Federal income tax.....		20,000	
Total disbursements.....	\$	574,900	

**ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 2**

The Alpha Company maintains seven district sales offices. The following is an analysis of the sales by districts for the past two years. The sales for 1940 include actual sales for eleven months and estimates for the month of December.

District	Units Sold	
	1939	1940
A.....	15,500	25,000
B.....	17,000	36,000
C.....	23,000	28,000
D.....	21,000	30,000
E.....	17,000	20,000
F.....	20,000	30,000
G.....	15,000	16,000
Total units sold.....	<u>128,500</u>	<u>185,000</u>

Each district sales manager furnished his salesmen with information concerning their individual sales for the past two years and asked them to prepare estimates of probable sales for the year 1941. The district sales managers summarized the salesmen's estimates and, after revising them to conform to their opinion of the expected volume, forwarded the statements to the general sales manager.

The district estimates were reviewed by the general sales manager, who made such revisions as he thought necessary. The production manager and the treasurer checked the final estimates and approved the sales budget as the basis for the company budget. The selling price of the product for the year 1941 was tentatively set at \$40 per unit, and the following schedule of units to be sold by each district was prepared:

District	Estimated Units 1941
A.....	27,000
B.....	35,000
C.....	24,000
D.....	30,000
E.....	25,000
F.....	33,000
G.....	18,000
Total.....	<u>192,000</u>

The estimates represent the expected sales for the entire year 1941. As explained in Assignment Number 1, the budget for the Alpha Company will be prepared in detail for only the first three months of 1941. However, the sales budget is prepared for the entire year in order to provide a basis for production, inventory, and other estimates. When the budget for the second three-month period is prepared, the sales estimates for that period may be revised and, of course, will be divided into monthly sales estimates. Based upon previous experience, the allocation of the estimated sales to budget periods for 1941 is as follows:

<u>Period</u>	<u>Units</u>
First Quarter	
January . . . . .	15,360
February . . . . .	13,440
March . . . . .	11,520
Total . . . . .	40,320
Second Quarter . . . . .	46,080
Third Quarter . . . . .	48,000
Fourth Quarter . . . . .	57,600
Total . . . . .	<u>192,000</u>

Prepare:

1. A sales budget by units and amounts for the year 1941 divided into months and quarters as above.
2. A schedule of estimated sales by districts and by periods for the first three months of 1941. Assume that the sales for each district should be apportioned to periods on the same basis as the apportionment of sales for all districts.

All statements in connection with the preparation of a complete budget should be prepared so as to show the source of the estimates and should be systematically numbered and cross-referenced. Each statement should represent a definite step in the development of the complete budget and should have a proper heading or title. One of the purposes of this problem is to develop proper technique in co-ordinating departmental estimates into a statement of estimated profit and loss and an estimated balance sheet. Therefore, the form of the statements submitted is important.

Always omit pennies in the preparation of a budget. There is no need to carry out the estimates beyond the nearest dollar.

### ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 3

The inventory of finished goods of the Alpha Company on December 31, 1940, is expected to be 40,000 units. The estimate of the number of units to be manufactured during the three months ending March 31, 1941, should be made after consideration of the following:

- (A) The number of units manufactured during the same period in 1940,
- (B) The adequacy of the finished goods inventory, and
- (C) The desire to maintain an even flow of production.

The following is a schedule of the actual production in 1940 and the increase planned for 1941:

<u>Month</u>	<u>Actual Units 1940</u>	<u>Estimated Increase 1941</u>
January .....	13,000	1,500
February .....	15,000	1,000
March .....	17,000	—

From the above data and the information given in Assignment Number 2, prepare:

- 1. A production budget by months.
- 2. A schedule showing the number of units of finished goods at the beginning and end of each month. Assume that the work in process will not change.

### ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 4

Four different materials enter into the manufactured product of the Alpha Company, called Materials A, B, C, and D. Standard material rates have been determined, based upon recent experience. Assume that the following quantities of materials are required for each 100 units of finished goods produced:

Material A.....	23.5 cwt.
Material B.....	15.7 yards
Material C.....	39.2 lbs.
Material D.....	78.4 feet

Compute the quantity of each material which will be required for production during each of the first three months of 1941, and the total for the quarter.

**ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 5**

The estimated inventory quantities and unit-purchase costs of the four materials used by Alpha Company are stated below:

Material	Estimated Quantity in Inventory				Estimated Unit Price
	December 31, 1940	January 31, 1941	February 28, 1941	March 31, 1941	
A.....	6,000	6,000	6,000	6,500	\$27.00
B.....	7,000	7,000	7,000	6,500	22.00
C.....	14,000	14,000	15,000	15,000	9.00
D.....	8,000	10,000	12,000	15,000	1.50

From this data and that given in preceding assignments prepare a purchase budget for the three months ending March 31, 1941, with a separate schedule for each material and a summary of total purchases and total inventories.

**ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 6**

The manufacture of the Alpha Company's product involves labor in three departments; the standard labor costs per unit of product are as follows:

Department A.....	\$1.10
Department B.....	2.25
Department C.....	1.20

Prepare a statement showing by months, for each department and for the finished product, the cost of labor that will be required to complete the estimated production for the three months ending March 31, 1941.

**ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 7**

The manufacturing expenses of the Alpha Company for the first three months of 1940, and the expected increases for the same period in 1941, are as follows:

<u>Item</u>	Manufacturing Expenses for Three Months Ending March 31	
	1940	Expected Increase for 1941
Indirect labor.....	\$ 20,000	\$ 3,750
Factory supplies.....	19,000	2,375
Factory rent.....	40,000	5,000
Light.....	4,000	400
Heat.....	7,500	500
Power.....	8,500	1,000
Repairs.....	17,000	2,000
Depreciation....	70,000	2,000
Insurance.....	6,000	750
Factory office expenses.....	3,975	None
Total.....	<u>\$195,975</u>	<u>\$17,775</u>

Factory rent, depreciation, insurance, and factory office expenses will be distributed equally by months. Indirect labor, factory supplies, repairs, and power will be used in the ratio which the production each month bears to the total production for the three months. Heat and light will be used as follows:

<u>Month</u>	<u>Heat</u>	<u>Light</u>
January.....	40%	40%
February.....	35%	30%
March.....	25%	30%
Total.....	<u>100%</u>	<u>100%</u>

From the above information prepare the manufacturing-expense budget by months. Compute the unit cost of manufacturing expense for the three-month period. It will not be necessary to obtain a separate unit cost for each month.



**ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 8**

Referring to the solutions of previous assignments for the Alpha Company, prepare statements for the three months ending March 31, 1941, as follows:

1. Estimated cost of materials used, showing beginning and ending inventories of materials.
2. Computation of underabsorbed manufacturing expenses.
3. Estimated unit cost of manufacturing.
4. Computation of finished-goods inventory using "first in first out" method.
5. Estimated cost of goods sold.
6. Proof of estimated cost of goods sold.

**ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 9**

The distribution expenses of the Alpha Company were analyzed and due allowance was made for carrying out the sales program. A total of \$311,948 is expected to be spent in the first three months of 1941, as follows:

(A) The fixed charges are:

Sales management salaries.....	\$17,000
Rent.....	7,500
Sales clerical expenses.....	6,000

These expenses will be distributed evenly over the three months.

- (B) Delivery expenses consist of fixed charges of \$4,000 per month, plus variable expenses which equal 30¢ per unit sold.
- (C) Salesmen's salaries will amount to \$120,000, divided equally by months.
- (D) The commissions and bonuses are expected to equal 50¢ per unit.
- (E) Traveling expenses are estimated at 15% of salesmen's salaries.
- (F) The balance is to be spent for advertising and sales promotion, of which \$25,000 per month is to be

expended for national advertising and the remainder is to be allowed the districts for local expenditures on the following basis:

- (1) From the total advertising allowance deduct the \$25,000 per month.
- (2) Distribute the remainder to months in proportion to the number of units to be sold.
- (3) Determine the allowance for local expenditures per unit of sale.

Prepare the distribution expense budget.

### ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 10

#### Part 1.

Prepare the estimate for administrative expenses of the Alpha Company for the three months ending March 31, 1941, using as a basis the estimated administrative expenses for the month of December, 1940 given in Assignment Number 1 and the following:

<u>Account</u>	<u>Variation from December Basis</u>
Executive salaries.....	Increase \$1,000.
Rent .....	Increase 250.
Depreciation.....	Increase 150.
Other fixed expenses.....	Decrease 400.
Office salaries.....	Increase { 500. for January and February 750. for March
Office supplies.....	Decrease 150.
Telephone and telegraph.....	No change.
Traveling expenses.....	Increase 250.
Provision for bad debts.....	Provide 1% of sales each month.

#### Part 2.

The rent included in manufacturing expenses, distribution expenses, and administrative expenses was estimated as follows:

Real-estate taxes.....	\$12,000
Depreciation of building.....	21,000
Insurance on building.....	3,600
Repairs and upkeep.....	<u>23,400</u>
Total.....	<u>\$60,000</u>

These expenses will be incurred evenly during the three months. Prepare a building-expense budget for the three months ending March 31, 1941; also show the distribution of rent.

**ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 11**

The collections from accounts receivable after allowing for bad debts are to be estimated on the basis of the experience of the past three years; during this period the collections have averaged as follows:

In the month billed.....	5%
In the following months:	
First month .....	35%
Second month .....	30%
Third month.....	15%
Fourth month.....	10%
Fifth month.....	3%
Sixth month.....	2%

The accounts receivable as of December 31, 1940, and the reserve applicable thereto, classified by billing dates, are expected to be as follows:

<u>Month Billed</u>	<u>Accounts Receivable</u>	<u>Reserve for Bad Debts</u>
July .....	\$ 16,350	\$ 1,000
August .....	39,500	1,000
September .....	117,000	1,500
October .....	305,750	2,000
November .....	613,000	7,000
December .....	405,400	4,500
Total .....	<u>\$1,497,000</u>	<u>\$17,000</u>

In making your computations of estimated collections from accounts receivable and sales, allow for the provision of a bad-debt reserve; to the remainder, representing total cash collections, apply the per cents mentioned above as reflecting collections by months. Allow for average cash discounts of  $1\frac{1}{2}$  per cent of the total collections for each month.

The following information is given concerning cash disbursements:

Material purchases are paid for in the month following the date of purchase.

Insurance premiums will be paid, \$2,000 in January, \$3,000 in February, and \$5,000 in March, 1941.

Notes outstanding on December 31, 1940 amounting to \$900,000 will mature as follows:

\$300,000 due January 31, 1941.  
 300,000 due February 28, 1941.  
 300,000 due March 31, 1941.

The interest rate is 6 per cent and renewals can be made for only 90-day periods. It is expected that the notes will be reduced \$100,000 on January 31, 1941, and the notes falling due in the other two months will be renewed for the full amounts. Interest is always prepaid at the time of the renewal.

The mortgage payable of \$750,000 is due in 1948. Interest at 5 per cent is payable January 1 and July 1.

No payment for local taxes will fall due in the three-month period ending March 31, 1941.

One fourth of the federal income taxes accrued on December 31, 1940 will be paid March 15, 1941.

Purchase discounts are estimated as equal to 2 per cent of the amount of material and national advertising invoices to be paid.

All other expenses will be paid for in the month incurred.

On February 15, 1941 the quarterly cash dividend on the 6 per cent preferred capital stock will be paid. On the same date a dividend of 25¢ per share will be paid on the \$10 par value common stock.

Capital additions will be paid for in the months in which the obligations are incurred, as follows:

<u>Month</u>	<u>Disbursements for</u>	
	<u>Building</u>	<u>Equipment</u>
January .....	—	\$10,000
February .....	\$ 59,000	25,000
March .....	100,000	60,000

Using the above information and the solutions to previous assignments, prepare the following statements for the three months ending March 31, 1941:

1. Estimated collections from accounts receivable.
2. Estimated cash disbursements with supporting schedules for all necessary summaries and computations.
3. Capital additions budget.
4. Summary of estimated cash receipts, disbursements, and balances.

**ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 12**

From the information contained in the solutions to previous assignments, prepare:

1. Statement of estimated profit and loss for the three months ending March 31, 1941. Provide for federal income taxes, assuming a flat rate of 15 per cent of net profit.
2. Working papers to be used in preparing the estimated balance sheet as of March 31, 1941. These should include:
  - Journal entries showing the effect of the various budgets;
  - Work sheet in which these journal entries are applied to the December 31, 1940 balance sheet.Assume that during the three months \$20,000 of bad accounts are to be charged against the reserve for bad debts.
3. Estimated balance sheet, March 31, 1941, prepared in comparison with the December 31, 1940 balance sheet.
4. Statement of estimated application of funds for the three months ending March 31, 1941.

**ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 13**

The following statement of profit and loss was prepared from the books of the Alpha Company for the three months ended March 31, 1941:

Sales (41,000 units).....		\$1,608,000	
Cost of goods sold:			
Materials used.....	\$ 720,637		
Labor.....	222,950		
Manufacturing expense absorbed.....	220,500		
Total cost of goods manufactured.....	\$1,164,087		
Inventory of finished goods, December 31, 1940 ..	920,000		
Total.....	\$2,084,087		
Inventory of finished goods, March 31, 1941 ....	1,140,330		
		<u>943,757</u>	
Gross profit.....		\$ 664,243	
Distribution expenses:			
Sales managers' salaries.....	\$ 17,000		
Rent.....	7,500		
Sales clerical expenses.....	6,300		
Salesmen's salaries.....	126,000		
Delivery expenses.....	15,000		
Commissions and bonuses.....	22,500		
National advertising.....	78,000		
Local advertising.....	27,800		
Traveling expenses.....	17,200	\$ 317,300	
Administrative expenses:			
Executive salaries.....	\$ 30,000		
Rent.....	7,500		
Depreciation.....	11,800		
Other fixed expenses.....	8,900		
Office salaries.....	42,000		
Office supplies.....	4,100		
Telephone and telegraph.....	3,700		
Traveling expenses.....	1,750		
Provision for bad debts.....	16,080	125,830	
		<u>443,130</u>	
Net profit from operations.....		\$ 221,113	
Add discount on purchases.....		16,250	
Total income.....		\$ 237,363	
Deduct financial expenses:			
Discount on sales.....	\$ 28,500		
Interest expense.....	21,875		
Building operations.....	2,100	52,475	
		<u>184,888</u>	
Net profit before provision for federal income tax. . .		\$ 184,888	
Provision for federal income tax.....		27,733	
Net profit.....		<u>\$ 157,155</u>	

During the three months, 49,000 units were completed and placed in the finished goods inventory.

The materials purchased and used in production during the three months ended March 31, 1941, and the material inventories on that date, were as follows:

<u>Material</u>	<u>Quantity Used in Production</u>	<u>Purchases</u>		<u>Inventory March 31st</u>	
		<u>Quantity</u>	<u>Price</u>	<u>Quantity</u>	<u>Amount</u>
A.....	12,250	12,000	\$27.00	5,750	\$155,250
B.....	7,350	6,000	25.00	5,650	141,250
C.....	19,600	17,000	9.50	11,400	108,300
D.....	36,750	60,000	1.25	31,250	39,063

The labor by manufacturing departments was as follows:

Department A.....	\$ 58,800
Department B. ....	102,900
Department C.....	61,250

The manufacturing expenses incurred for the three months were as follows:

Indirect labor.....	\$ 25,000
Factory supplies.....	22,000
Factory rent.....	45,000
Light .....	4,200
Heat.....	7,600
Power.....	10,300
Repairs.....	17,800
Depreciation.....	73,100
Insurance. ....	6,750
Factory office expense.....	4,900
Total.....	<u>\$216,650</u>

The expenses incurred for building operations were as follows:

Real estate taxes.....	\$ 12,000
Depreciation on building.....	21,500
Insurance on building.....	3,600
Repairs and upkeep.....	25,000
Total.....	<u>\$ 62,100</u>

From the information presented above and the solutions to preceding assignments, prepare, as indicated, a comparative statement of performance and budget for the three months ended March 31, 1941, and analyses of the differences therein:

	<u>Comparative Statement</u>	<u>Analysis of Differences</u>
1. Profit and loss . . . . .	X	
2. Sales . . . . .	X	X
3. Cost of goods sold . . . . .	X	X
4. Gross profit . . . . .	X	X
5. Distribution expenses . . . . .	X	
6. Administrative expenses . . . . .	X	
7. Building expenses . . . . .	X	
8. Summary of causes of difference in net profit . . . . .		X

# ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 14

From the information presented in and the solutions to previous assignments, prepare, as indicated, a comparative statement of performance and budget for the three months ended March 31, 1941, and analyses of the differences therein:

	<u>Comparative Statement</u>	<u>Analysis of Differences</u>
1. Unit cost of goods sold . . . . .	X	
2. Unit cost of current production . . . . .	X	
3. Materials used (for all materials) . . . . .	X	X
4. Labor, by departments . . . . .	X	X
5. Manufacturing expense absorbed . . . . .	X	X
6. Manufacturing expenses incurred . . . . .	X	
7. Summary of differences in cost of manufacturing . . . . .		X
8. Cost of materials used (for each material and a summary) . . . . .	X	X
9. Quantity of materials used . . . . .	X	X
10. Unit cost of materials used . . . . .	X	X



## ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 15

The following is a list of assets and liabilities of the Alpha Company on March 31, 1941:

<u>Assets</u>		
Cash.....		\$ 264,340
Accounts receivable.....	\$1,115,000	
Less reserve for bad debts.....	<u>8,080</u>	1,106,920
Inventories:		
Materials.....	\$ 443,863	
Work in process.....	175,000	
Finished goods.....	<u>1,140,330</u>	1,759,193
Unexpired insurance.....		29,650
Prepaid interest.....		8,500
Land.....		600,000
Buildings.....	\$3,375,000	
Equipment.....	<u>3,840,000</u>	
Total.....	<u>\$7,215,000</u>	
Less reserve for depreciation.....	<u>1,981,400</u>	5,233,600
		<u>\$9,002,203</u>
<u>Liabilities and Net Worth</u>		
Notes payable.....		\$ 800,000
Accounts payable.....		275,000
Accruals:		
Local taxes.....	\$ 57,000	
Interest.....	9,375	
Federal income taxes.....	<u>128,263</u>	194,638
Overabsorbed manufacturing expenses		3,850
Mortgage payable.....		750,000
Preferred capital stock.....		2,000,000
Common capital stock.....		3,000,000
Surplus.....		1,821,560
Net profit for three months.....		157,155
		<u>\$9,002,203</u>

Additional information taken from the books for the three months ended March 31, shows:

Gross cash collections (credit to accounts receivable) .	\$1,965,000
Bad accounts written off.....	25,000

Material invoices amounting to \$755,500 were paid from which \$14,750 discount was deducted requiring \$740,750 cash. Discount taken when paying national advertising invoices amounted to \$1,500.

Insurance premiums paid amounted to \$9,000; federal income tax, interest expense, notes payable, and dividend payments agreed with the amounts provided in the budget.

Disbursements for capital additions amounted to \$265,000.

Prepare, as to each of the following, a comparative statement of the actual and the budgeted condition on March 31, 1941, and analysis of the differences therein as illustrated in Chapter 15:

1. Balance sheet.
2. Working capital.
3. Cash balance.
4. Accounts receivable.
5. Inventory of materials.
6. Inventory of finished goods.
7. Accounts payable.
8. Overabsorbed manufacturing expenses.

### ALPHA COMPANY BUDGET, ASSIGNMENT NUMBER 16

The Alpha Company prepared tentative estimates for certain activities for the month of April, 1941. The following are some of the estimates made for that month:

Production of finished goods 18,000 units.

<u>Material</u>	<u>Purchases</u>	<u>Purchase Commitments</u>	<u>Production Requirements</u>
A .....	4,500	2,500	4,230
B.....	2,000	1,800	2,826
C.....	6,000	2,000	7,056
D ....	15,000	4,000	14,112

The estimates for April were based on the assumption that the inventories of finished goods and materials on March 31, 1941 would equal the budget estimates. Prepare, as to each of the following, a statement showing the required adjustments of April estimates in order to make allowance for the difference between actual and budgeted inventories on March 31, 1941:

1. Production.
2. Materials to be used.
3. Purchases.

Also determine the quantity of each material still "open to buy."

The number of units of each material required for the manufacture of one unit of each product for the month of April, 1941 is assumed to be the same as that used in the preparation of the budget for the three months ended March 31, 1941.



## QUESTIONS AND PROBLEMS

### QUESTIONS ON CHAPTER 1

**Question 1.** What statements would be contained in a budget prepared in its broadest scope?

**Question 2.** How may the budget help the management in controlling profits?

**Question 3.** What factors should determine the length of the budget period?

**Question 4.** Illustrate how budget estimates may be used in co-ordinating the functional activities of a business.

**Question 5.** Why is a comparison of the results of operations with those forecast in a budget a better test of operating efficiency than a comparison of current results with those of previous periods?

**Question 6.** Explain the difference between an estimate, a forecast, and a budget.

**Question 7.** Should a budget be flexible? Explain.

**Question 8.** What important technical knowledge is needed to supervise the budget program?

**Question 9.** What is the purpose of a forecast of cash receipts and disbursements?

**Question 10.** How does the budget serve management?

## PROBLEM 1

The following is a statement of the profit and loss of the Lacdum Company for the year ended August 31, 1940:

Sales.....		\$600,000	
Cost of sales:			
Materials.....	\$195,000		
Direct labor.....	130,000		
Factory expense.....	<u>65,000</u>	390,000	
Gross profit.....		\$210,000	
Expenses:			
Selling expense.....	\$ 90,000		
Administrative expense.....	<u>40,000</u>	130,000	
Net profit .....		<u>\$ 80,000</u>	

For the year ending August 31, 1941, it is expected that the sales will increase  $33\frac{1}{3}$  per cent in volume, while selling and general expenses, as well as the production costs, are estimated to advance as follows:

The price of materials and direct wage rates are expected to go up 20 per cent, but there will be a reduction of 10 per cent in the material content of the finished product. Total factory expenses are expected to be 15 per cent higher. Selling expense is expected to increase 20 per cent, and general expense 25 per cent.

By what percentage must the selling price be increased in order that the net profit for the year ending August 31, 1941 shall exceed that of the previous year by 25 per cent?

## PROBLEM 2

The Delta Manufacturing Company prepares a three-month budget. It manufactures and sells two products, A and B. It has prepared a sales budget as follows:

<u>Month</u>	<u>Product A</u>	<u>Product B</u>
January.....	2,000 units @ \$10 = \$20,000	12,000 units @ \$5 = \$ 60,000
February.....	2,500 units @ 10 = 25,000	10,000 units @ 5 = 50,000
March.....	<u>3,500 units @ 10 = 35,000</u>	<u>9,000 units @ 5 = 45,000</u>
Total....	<u>8,000 units @ 10 = \$80,000</u>	<u>31,000 units @ 5 = \$155,000</u>

The inventory of finished goods on January 1 and the desired inventory on March 31 are as follows:

	<u>Product A</u>	<u>Product B</u>
January 1.....	3,000 units	20,000 units
March 31.....	6,000 units	18,000 units

### PROBLEM 3

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- (a) Prepare a production budget, distributing production to months as follows:

	<u>Product A</u>	<u>Product B</u>
January.....	30%	35%
February... ..	32%	32%
March.....	38%	33%

Four materials are used in production, called D, L, R, and T. The estimated quantity of materials to be used for each product is:

<u>Material</u>	<u>Product A</u>	<u>Product B</u>
D.....	3.50 units	.50 units
L.....	—	2.25 units
R.....	1.75 units	.40 units
T.....	2.60 units	—

- (b) Prepare a materials budget by periods.

The inventory of materials on January 1 and the desired inventory on March 31 are as follows:

	<u>D</u>	<u>L</u>	<u>R</u>	<u>T</u>
January 1.....	35,000 units	30,000 units	20,000 units	18,000 units
March 31.....	35,000 units	40,000 units	25,000 units	12,000 units

- (c) Prepare a budget showing the number of units which should be purchased during the three-month period in order to obtain the desired inventories of material on March 31.

### PROBLEM 3

A retail store prepares a budget for the period from February 1, 1940 to January 31, 1941. A separate merchandise budget is prepared for each department, the principal purpose being to budget purchases and thus to control inventory and turnover. The retail-inventory method is used.

The form shown on the next page was used to prepare the estimates for each department. Data have been entered concerning Department K and you are required to prepare a similar form inserting the missing data. The purchases and inventory should be such as to achieve a turnover rate of 3.7.

You are also required to prepare a simple graph showing the monthly fluctuation of sales, inventory, and purchases.

## MERCHANDISE BUDGET

Department   K   Kind of Goods   Clothing  

Period: From February 1, 1940  
To January 31, 1941

Retail inventory beginning of period . . . . . \$240,000

Retail inventory estimated for end of period . . . . . \$210,000

Per cent markup last year . . . 29.5% Per cent markup desired . . . 30%

Month	Purchases		Sales		Estimated Retail Inventory at End of Month
	Cost	Retail	Last Year	Estimated This Year	
February			\$ 72,840	\$ 75,000	
March			87,521	90,000	
April			101,538	100,000	
May			69,722	70,000	
June			61,422	60,000	
July			52,850	50,000	
August			69,733	70,000	
September			58,631	60,000	
October			48,538	50,000	
November			70,362	70,000	
December			88,537	90,000	
January			68,318	66,000	
Total			\$850,012	\$851,000	
Retail inventory beginning of period					
Total of all inventory balances					
Average retail inventory (divided by 13)					
Rate of turnover					

## PROBLEM 4

The Beta Company manufactures numerous related small products. No information is available as to the number of units of product manufactured and the budget is prepared in dollars only. An analysis of the productive labor by quarters for the year 1940 is as follows:

<u>Quarter</u>	<u>Department A</u>	<u>Department B</u>	<u>Total</u>
First.....	\$18,776	\$ 3,141	\$21,917
Second.....	16,919	3,763	20,682
Third.....	21,134	4,062	25,196
Fourth.....	24,894	4,189	29,083
Total.....	<u>\$81,723</u>	<u>\$15,155</u>	<u>\$96,878</u>

The budget for 1941 shows estimated sales as follows:

Department A . . . . .	\$465,623
Department B.....	140,052

The ratios of labor to net sales during 1940 were as follows:

Department A... . . . .	19.05%
Department B. . . . .	11.15%

These ratios are expected to remain the same in 1941.

From the above data, compute the labor requirements for 1941 assuming that the inventories of finished goods and work in process at the end of the budget period will show a decrease of 10 per cent and that the labor cost included in these inventories on December 31, 1940 was as follows:

Department A.....	\$29,058
Department B.....	<u>7,430</u>

The distribution of labor requirements as between quarters will be the same as in 1940.



## PROBLEM 5

The Magazine Publishing Company distributes its magazines on subscription orders and by sales on newsstands. Subscriptions are received in advance for periods averaging 12 months. Newsstand copies are sold through a single distributor by an arrangement whereby the distributor may return all unsold copies and receive full credit, and in addition shall charge the publisher one cent per copy on unsold copies as a handling charge.

The following estimates have been prepared by the subscription department:

	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>
(A) New orders and renewals expected, expressed as the number of 12-month orders	85,000	40,000	25,000	55,000
(B) Cash received from orders in A	\$183,600	\$ 96,000	\$60,000	\$125,400
(C) Copies to be delivered to subscribers on subscription orders received prior to January 1. . . . .	165,000	115,000	85,000	45,000
(D) Average income per copy on copies delivered in C. . . . .	20¢	19¢	19½¢	20¢

The following estimates were prepared by the newsstand department and the production department:

	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>
(A) Copies to be shipped in bulk to distributor. . . . .	200,000	180,000	196,000	220,000
(B) Per cent of returns expected. .	25%	20%	25%	30%
(C) Copies to be printed. . . . .	450,000	420,000	430,000	450,000
(D) Manufacturing cost per copy	8½¢	8¢	8¢	8½¢

Newsstand copies are sold to the distributor at 17 cents each. Delivery of copies on subscriptions received on new orders and renewals is begun in the month in which the orders are received.

Cash received from subscriptions is credited to an unearned subscription income account. The balance of this account is \$585,000 on December 31.

Prepare statements showing:

1. The estimated gross profit for January, February, March, and April, and for the four months.
2. How the gross profit would be affected by distributing 50,000 additional copies to the newsstands each month, assuming that the returns to be expected from this additional distribution will be 40 per cent.
3. Computation of the balance of the unearned subscription income account.

## PROBLEM 6

A corporation engaged in manufacturing and wholesaling two principal products has called upon you for advice on its sales policy for the coming year.

In prior years selling expenses were 18 per cent of the sales, of which one-third was for advertising. Administrative expenses were 5 per cent of the sales.

Two propositions are now under consideration by the management by either of which they hope to (1) increase the volume of sales, (2) decrease unit production costs, and (3) reduce the ratio of selling expenses to sales. These propositions are outlined to you by the management as follows:

### Proposition 1. Premium Stamp Books

Premium stamp books will be widely distributed to consumers, who will obtain stamps from the packaged products. When a book is filled with stamps (100 stamps to each book), it may be returned to the corporation and will be redeemed by the award of a prize or premium described under the unbroken seal attached to the book and intact at the time of presentation. A schedule of such prizes and premiums which the management proposes in this plan is as follows:

<u>Number of Books</u>	<u>Prize Each</u>	<u>Amount</u>
1	\$150.00	\$ 150
5	50.00	250
14	20.00	280
50	10.00	500
160	5.00	800
1,020	1.00	1,020
8,750	.40	3,500
<u>10,000</u>		<u>\$6,500</u>

Every 10,000 books distributed will provide for prizes in accordance with the above schedule. This is definitely fixed and not subject to alteration or modification.

The cost of this plan will be as follows:

Books, including expense of distribution...	\$ 15 per M books
Stamps.....	1 per M stamps
Prizes, according to schedule.....	650 per M books

It is proposed that each package of product A shall contain 8 premium stamps and each package of product B shall contain 4 premium stamps. The premium stamp book plan is intended to take the place of all previous advertising, which will be immediately discontinued if this proposition is adopted. Selling prices previously established will be maintained without change.

**Proposition 2. Reduced Selling Prices**

Under this plan it is proposed to reduce selling prices of product A by  $8\frac{1}{2}$  per cent and of product B by 5 per cent and to continue all previous advertising with some increase therein. This proposition is being considered as an alternative of proposition 1, and if adopted no use will be made of premium stamp books.

	<u>Product A</u>	<u>Product B</u>
Facts as to previous operations:		
Average quantity sold per annum...	200,000 units	600,000 units
Production costs, per unit.....	40¢	30¢
Selling prices, per unit.....	60¢	40¢
Expected changes:		
Increase in unit sales volume:		
Proposition 1.....	50%	50%
Proposition 2.....	40%	25%
Decrease in unit production costs:		
Proposition 1.....	5%	10%
Proposition 2.....	$7\frac{1}{2}\%$	$6\frac{2}{3}\%$
Advertising:		
Proposition 1.....	None	None
Proposition 2.....	8% of sales	7% of sales
Other selling expenses:		
Proposition 1.....	15% of sales	12% of sales
Proposition 2.....	12% of sales	12% of sales
Premium book expenses:		
Proposition 1.....	(As indicated)	
Proposition 2.....	None	None
Administrative expenses:		
Proposition 1.....	4% of sales	4% of sales
Proposition 2.....	Same amount as prior years.	

It is requested that you make any definite recommendation for modifying either proposition that will further advance the management's objects.

In proposition 1 it is assumed that premium stamp books and stamps will be distributed in exactly sufficient quantities to supply every customer under the proposed schedule of sales and that all such books and stamps will be redeemed.

Prepare a schedule, such as you would submit to the management, giving a comparison of the operations in previous years with those under both propositions as originally made or as modified by you, accompanied by statistical data and analysis. Arrange the schedule so that it will permit an easy appraisal of the advantages and disadvantages of the proposals and show whether or not the desired results in respect of increased sales, decreased cost, and decreased selling expenses are attained. Your conclusions must be apparent from the comparisons submitted.

## PROBLEM 7

The following is a summary of the operating budget of the Jane Manufacturing Company for the three months ending March 31, 1941:

	<u>December</u>	<u>January</u>	<u>February</u>	<u>March</u>
Sales.....	\$20,000	\$10,000	\$25,000	\$15,000
Purchases.....	—	15,000	7,000	8,000
Labor.....	—	3,000	2,500	2,000
Royalties.....	—	500	1,250	750
Taxes.....	—	100	100	100
Insurance.....	—	50	50	50
Depreciation.....	—	125	125	125
Selling expenses.....	—	1,500	1,500	1,300
Office expenses.....	—	1,200	1,500	1,300
Other expenses.....	—	<u>500</u>	<u>500</u>	<u>500</u>

The accounts receivable on December 31, 1940 amounted to \$30,000 and equal 45 days' billing. It is estimated that the accounts receivable at the end of each month will also equal 45 days' billing. A 30-day month should be used for this computation regardless of the actual number of days.

The accounts payable at the end of each month consist of the purchases, selling expense, office expense, and other expense invoices entered on the books during that month. On December 31, 1940, the accounts payable amounted to \$13,000.

Labor is paid on a weekly basis and the accrual at the end of each month is computed to be as follows:

December 31, 1940.....	\$500
January 31, 1941.....	700
February 28, 1941.....	700
March 31, 1941.....	400

The royalties are payable within the month incurred.

A tax bill of \$600 will be paid in March.

No insurance premiums are due in the three-month period.

The cash on hand on December 31, 1939 amounted to \$8,000.

From the above information, prepare for the three months:

1. A statement of estimated cash receipts.
2. A statement of estimated cash disbursements.
3. A summary showing the cash balance at the end of each month.

## PROBLEM 8

You have been employed by the Columbus Specialty Company to prepare a forecast of its operations for the period from April 1 to July 31. From the information given, prepare a cash statement, a monthly income and expense statement in columnar form, and a balance sheet as it should appear on July 31.

### Balance Sheet on March 31

<u>Assets</u>	
Cash on deposit.....	\$ 24,820.00
Accounts receivable ..	69,600.00
Inventory of raw material... ..	27,000.00
Buildings, machinery, and equipment. . . .	135,000.00
Prepaid insurance.....	3,300.00
	<u>\$259,720.00</u>
<u>Liabilities</u>	
Notes payable (special 6% loan).....	\$ 30,000.00
Accounts payable.....	51,300.00
Accrued pay roll... ..	12,500.00
Accrued interest and taxes. ....	3,300.00
Depreciation reserve.....	2,700.00
Capital stock.....	140,000.00
Surplus.....	19,920.00
	<u>\$259,720.00</u>

### Income and Expense for the Three Months Ended March 31

Sales (60,000 units).....		\$180,000.00
Material consumed... ..	\$60,000.00	
Direct labor. ....	36,000.00	
Overhead.....	<u>36,000.00</u>	<u>132,000.00</u>
		\$ 48,000.00
Administrative expense.....	\$15,000.00	
Selling expense.....	<u>9,000.00</u>	<u>24,000.00</u>
		\$ 24,000.00
Cash discounts.....	\$ 1,080.00	
Depreciation.....	2,700.00	
Interest.....	<u>300.00</u>	<u>4,080.00</u>
Net profit.....		<u>\$ 19,920.00</u>

Buildings and equipment are used only in manufacturing, depreciation being provided for on straight-line basis. New machinery valued at \$15,000 will be purchased in July. Depreciation charges will be as follows: April, May, June, \$1,000 each; July, \$1,060.

Thirty per cent of current month's sales are paid within the same month and are allowed 2 per cent cash discount; 60 per cent are paid during the following month; 8 per cent in the second month; and balance may be considered uncollectible. No provision has been made for losses arising from uncollectible accounts.

Accounts payable are due on the 10th of each month for all purchases and expenses of previous month, including administrative and selling. Pay rolls are payable on the 5th and 20th of each month for preceding half calendar-month periods.

Company's credit permits loans in multiples of \$10,000 for full calendar months only, with interest deducted at 6 per cent per annum. In computing monthly cash requirements, you may disregard the actual dates of receipts and disbursements and consider that the full month's receipts are available to apply on the disbursements of the same month. Special term note outstanding March 31 is dated February 1, due in four months.

The sales department estimates the following monthly requirements and recommends certain additional production to establish a reserve for future demands:

	<u>Sales</u>	<u>Production</u>
January (actual).....	10,000 units	10,000 units
February (actual).....	20,000 units	20,000 units
March (actual).....	30,000 units	30,000 units
April (estimated).....	20,000 units	30,000 units
May (estimated).....	25,000 units	40,000 units
June (estimated).....	30,000 units	35,000 units
July (estimated).....	65,000 units	60,000 units
August (estimated).....	50,000 units	50,000 units

Cost of finished product should be average of beginning inventory of finished product with current month's production cost. It is expected that the selling price of \$3.00 a unit can be maintained and that selling expense will retain a fixed relation to sales. Administrative expenses will remain unchanged during the period of your investigation.

Direct labor and material costs have a constant relation to production. Overhead expenses are at a minimum of \$10,000 a month when production is at 10,000 units or less, and increase with production at the rate of \$1.00 for each \$3.00 expended for direct labor. Fifty per cent of such expenses consists of indirect labor and fixed monthly charges for insurance and taxes, and 50 per cent comprises various manufacturing expenses exclusive of depreciation.

Insurance was taken out January 1 for three years at a cost of \$3,600. Taxes of \$12,000 per annum are payable June 20 and December 20 for current semiannual periods.

It is desired that a raw-material inventory be maintained sufficient only for the following month's requirements.

At a directors' meeting to be held during April, a dividend of 10 per cent will be declared payable May 15.

Income taxes may be disregarded.

## PROBLEM 9

The following is a statement of the gross profit of the Gamma Company for the year 1940:

Sales (10,000 units).....			\$1,000,000
Cost of goods sold:			
Raw materials:			
Inventory, December 31, 1939.....	\$175,000		
Purchases.....	400,000		
Total .....	\$575,000		
Inventory, December 31, 1940.....	275,000	\$300,000	
Direct labor.....		200,000	
Factory expenses.....		100,000	
Cost of goods manufactured (10,000 units).....		\$600,000	
Inventory of finished goods:			
December 31, 1939 (5,000 units) ....	\$250,000		
December 31, 1940 (5,000 units).....	300,000	50,000	550,000
Gross profit.....			<u>\$ 450,000</u>

A sales budget was prepared for 1941 showing estimated sales of \$1,035,000, after allowing for an expected decrease in selling price of 10 per cent.

The estimated production for 1941 is 12,000 units and the unit costs are expected to be as follows:

Raw materials.....	\$27.50 per unit
Direct labor.....	17.50 " "
Factory expense .....	8.50 " "

The inventory of raw materials on December 31, 1941 is planned at \$200,000.

Prepare:

1. A statement comparing 1941 estimated with 1940 actual gross profit.
2. An analysis of the difference in gross profit.

## PROBLEM 10

The following information is given for the Blank Manufacturing Company for the year ended December 31, 1940:

	<u>Budget</u>	<u>Actual</u>
Sales:		
10,000 units @ \$30 .....	\$300,000	
12,000 units @ \$25 .....		\$300,000
Inventories:		
Raw materials, January 1		
A—40,000 lbs. @ \$1.00....	40,000	40,000
B— 5,000 ft. @ \$2.00....	10,000	10,000
Finished goods, January 1		
3,000 units @ \$15.....	45,000	45,000
Production:		
Estimated—11,000 units		
Actual —13,000 units		
Materials:		
Purchases		
A—60,000 lbs. @ \$1.00.....	60,000	
A—50,000 lbs. @ \$1.10.....		55,000
B—10,000 ft. @ \$2.00.....	20,000	
B—12,000 ft. @ \$1.50.....		18,000
Used in production:		
Material A		
Estimated—77,000 lbs.		
Actual —78,000 lbs.		
Material B		
Estimated—11,000 ft.		
Actual —13,000 ft.		
Labor.....	66,000	65,000
Manufacturing expenses.....	33,000	39,000
Distribution expenses.....	50,000	55,000
Administrative expenses . . . .	30,000	25,000
Interest.....	5,000	4,000

Assume that there is no work-in-process inventory.

You are required to prepare:

1. Computation of budget and actual closing inventories of materials and finished goods using first-in-first-out method.
2. Comparison of budget and actual cost of goods sold.
3. Comparison of budget and actual net profit.
4. Analysis of difference between budget and actual cost of materials used in production.



## PROBLEM 11

The balance sheet of the Olive Company on December 31, 1940 appears as follows:

<u>Assets</u>		<u>Liabilities</u>	
Cash.....	\$ 4,000	Notes payable...	\$ 65,000
Accounts receivable . . . . .	\$58,000	Accounts payable	28,000
Less reserve for bad debts..	<u>9,000</u>	Accrued pay roll.	1,500
	49,000	Capital stock....	100,000
Inventories .....	78,000	Surplus .....	42,750
Prepaid interest.....	500		
Prepaid insurance.....	750		
Land.....	20,000		
Buildings.....	\$75,000		
Less reserve for depreciation	<u>12,000</u>		
	63,000		
Machinery and equipment .	\$48,000		
Less reserve for depreciation	<u>26,000</u>		
	22,000		
	<u>\$237,250</u>		<u>\$237,250</u>

The following is a summary of the operating budget for the year ending December 31, 1941:

Sales .....	\$185,000
Material purchases.....	49,500
Direct labor....	48,750
Interest expense... ..	3,600
Depreciation of buildings.....	2,250
Depreciation of machinery and equipment...	9,500
Insurance expense .....	4,800
Provision for bad debts .....	3,900
Selling expenses ... ..	28,600
General and administrative expenses.....	14,750

It is expected that accounts receivable on December 31, 1941 will amount to 35 per cent of the sales budget. Bad accounts amounting to \$2,800 will be charged to the reserve for bad debts during the budget year and it is estimated that \$1,200 will be collected from accounts previously written off (to be treated as income).

The inventories on December 31, 1941 will amount to \$69,000. The prepaid interest on December 31, 1941 will amount to \$650, and the prepaid insurance will be \$575.

The additions to fixed assets for the period are expected to be as follows:

Buildings.....	\$3,500
Machinery and equipment.....	4,200

The accounts payable on December 31, 1941 are estimated at \$31,000 and the accrued pay roll will be \$1,675. A cash dividend of \$6,000 will be paid during the budget year.

From the above information, you are required to prepare:

1. A statement of estimated cash receipts and disbursements. Do not provide for any payment on notes payable, but show the amount available to reduce notes payable and yet maintain the same bank balance as at December 31, 1940.
2. An estimated balance sheet as of December 31, 1941.

### PROBLEM 12

On December 31, a company estimated its cash position for the following three months. You are given the following:

- (A) The data used in preparing the estimate.
- (B) The actual figures as taken from the books on the following March 31.

Prepare a comparison of estimated and actual cash receipts and disbursements accounting for the difference in the cash balance. Also submit an analysis of the variation in sales and in purchases.

	Estimated		Actual	
	Quantity	Amount	Quantity	Amount
Sales. ....	25,000	\$50,000	27,500	\$48,125
Purchases. ....	30,000	30,000	35,000	31,500
Pay roll. ....		7,500		7,750
Royalties. ....		2,500		2,750
Tax expense. ....		300		375
Insurance expense. ...		150		150
Depreciation. ....		375		375
Selling expenses. ....		4,300		4,800
Office expenses. ....		4,000		3,750
Other expenses. ....		1,500		1,350
Accounts receivable:				
December 31. ....		30,000		30,000
March 31. ....		27,500		28,000
Accounts payable:				
December 31. ....		13,000		13,000
March 31. ....		11,100		12,000
Accrued pay roll:				
December 31. ....		500		500
March 31. ....		400		425

The foregoing items of income and expense derive from the profit-and-loss statement. The following facts are to be considered in connection with the preparation of cash receipts and disbursements statements.

- (A) Royalties are paid within the month incurred.
- (B) The accounts payable at the end of each month consist of the purchases, selling expense, office expense, and other expense invoices entered on the books during that month.
- (C) It was estimated that a tax bill of \$600 would be paid during the period. The actual amount paid was \$675.
- (D) It was estimated that no insurance premiums would be paid during the period and none were actually paid.
- (E) The cash on hand on December 31 amounted to \$8,000.

### PROBLEM 13

During the month of December, 1940, the Nonsuch Oil Company prepared a cash budget covering the six months from January 1 to June 30, 1941, the main purpose being an endeavor to forecast the company's cash position as to June 30, 1941.

You are given the figures used in compiling the budget, and the actual figures for the six months.

From these data, you are required to prepare: a statement showing a comparison between estimated and actual cash receipts and disbursements, and an analysis of the various factors which contributed to the differences between the estimated and the actual cash position.

# NONSUCH OIL COMPANY

	<u>Estimated</u>	<u>Actual</u>
Sales of crude oil. . . . .	\$4,000,000	\$3,610,000
Sales of refined products:		
Gasoline. . . . .	4,400,000	4,200,000
Kerosene. . . . .	420,000	406,000
Other. . . . .	1,555,200	1,580,400
Purchases of refined products:		
Gasoline. . . . .	315,000	380,000
Other. . . . .	—	102,000
Operating expenses:		
Direct charges. . . . .	1,620,000	1,560,000
Materials and supplies from warehouses. . . . .	180,000	170,000
Marketing expenses. . . . .	2,290,400	2,222,240
General and administrative expenses. . . . .	900,000	800,000
Capital additions:		
Direct charges. . . . .	2,000,000	1,800,000
Materials and supplies from warehouses. . . . .	1,500,000	1,500,000
Interest on bonds. . . . .	60,000	60,000
Bond sinking fund. . . . .	50,000	50,000
Preferred stock dividend. . . . .	350,000	350,000
Preferred stock sinking fund. . . . .	200,000	200,000
Accounts receivable:		
January 1st. . . . .	900,000	900,000
June 30th. . . . .	1,200,000	1,100,000
Accounts payable:		
January 1st. . . . .	700,000	700,000
June 30th. . . . .	800,000	750,000
Inventories of materials and supplies:		
For operating purposes:		
January 1st. . . . .	50,000	50,000
June 30th. . . . .	50,000	50,000
For new construction:		
January 1st. . . . .	500,000	500,000
June 30th. . . . .	<u>500,000</u>	<u>400,000</u>

*Note.* Purchases of materials and supplies are paid for within the month received.

## Statement of Quantities

	<u>Purchases</u>	<u>Sales</u>
Crude oil (barrels):		
Estimated. . . . .	—	2,000,000
Actual. . . . .	—	1,900,000
Refined products (gallons):		
Gasoline:		
Estimated. . . . .	3,000,000	40,000,000
Actual. . . . .	4,000,000	42,000,000
Kerosene:		
Estimated. . . . .	—	6,000,000
Actual. . . . .	—	5,800,000
Other:		
Estimated. . . . .	—	19,440,000
Actual. . . . .	<u>1,200,000</u>	<u>17,560,000</u>

**PROBLEM 14**

The following estimates have been prepared for use in making the annual budget of the Ace Manufacturing Company:

Cost of goods sold.....	\$ 987,561
Administrative expenses.....	89,562
Sales.....	1,387,463
Financial expense.....	30,520

The ratio of sales to invested capital is 2 to 1. A satisfactory net profit for the enterprise would be 15 per cent on invested capital. Determine the amount allowable for distribution expenses if the required net profit is to be attained.

**PROBLEM 15**

In preparing the sales expense and distribution expense budgets, a manufacturer divides the sales department into territories. For each territory, estimates are prepared showing a base sales quota and an added quota. The local expense rate for each territory is set by deducting the fixed charges and a satisfactory net profit from the gross profit, and dividing the remainder by the base quota. This expense rate is then applied to the added sales quota to obtain the total expenses to be allowed for local efforts. The following data concerning the Atlanta territory are available:

Base quota.....	\$100,000
Gross profit....	45,000
Minimum satisfactory net profit on base quota.....	10,000
Fixed charges to territory.....	13,000
Added sales quota.....	10,000

If the total quota for the territory is made, what will be the net profit for the territory? How do you reconcile this net profit with the net profit on the base quota?

**PROBLEM 16**

A company is about to be formed for the purpose of manufacturing a specialty. After careful investigation, the following estimates have been made:

- (A) Selling price of article, \$75.
- (B) Cost to produce, \$35 per unit.
- (C) Selling and administrative expenses, \$14 per unit.
- (D) Sales:

First month.....	30 units
Second month.....	70 "
Third month.....	180 "
Fourth month.....	200 "
Each succeeding month.....	225 "

- (E) Terms of sale are \$15 with order and \$5 per month until paid.

Submit a statement of cash requirements by months for the first year and show the greatest amount of capital that will be required. All costs and expenses are incurred in the month of the sale.

**PROBLEM 17**

A fire insurance company is formed January 1, 1940 with a capital of \$500,000 and paid-in surplus of \$250,000. It expects to conduct a business that will result in a premium income (after deducting reinsurance and return premiums) for the first two years of \$360,000 and \$450,000 respectively and not less than \$630,000 for each succeeding year.

It is desired to keep the commission cost within 25 per cent and the other operating expenses at \$100,000 each year. The commission costs shall be considered as an expense at the date when the policies are written and are not to be deferred over the life of the policy.

For the purpose of the reserve for unearned premiums, it may be assumed (a) that June 30th is the average date of expiry of all premiums, and (b) that the premium income is equally divided between one-year, three-year, and five-year policies. For the purpose of interest, you may assume that the company received from its investments \$40,000 the first year, \$50,000 the second year, and \$60,000 each year thereafter.

You are required to make an estimate of income and expense, in tabular form, for the first five years ending December 31st, assuming the fire-loss ratio to premium income earned to be 50 per cent. Show how much higher a ratio than 50 per cent the company could bear each year without impairing its capital.

### PROBLEM 18

Company X manufactures a single product, A. A comparison of the budget with actual production for January is as follows:

	<u>Budget</u>	<u>Actual</u>
Units produced. . . . .	29,700	31,000

Material B is used in the manufacture of Product A; budget and actual data with respect to material used in production for January are as follows:

	<u>Budget</u>	<u>Actual</u>
Quantity required to produce 100 units. . . .	15.68	15.50
Unit cost of current purchases. . . . .	\$30.00	\$25.00

There were 3,500 units of Material B in the inventory on January 1, priced at \$30.00 per unit.

Prepare a statement showing a comparison of the budget and actual cost of material used in production and an analysis of variations.

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